

Appel à projets de recherche 2008

« Handicap psychique, autonomie, vie sociale »

DREES-MiRe et CNSA, en collaboration avec la DGAS, le GIS-IRESP et l'UNAFAM

Titre : ELABORATION D'UNE STRATEGIE D'EVALUATION DES FACTEURS
FONCTIONNELS PREDICTIFS DE L'INSETION PROFESSIONNELLE DES SUJETS
SCHIZOPHRENES

RAPPORT FINAL – annexes

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schizophrénie/trouble mental

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professionnelle

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Rapport final – Annexe 1 : Recherche bibliographique

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Appel à projets de recherche 2008

« Handicap psychique, autonomie, vie sociale »

DREES-MiRe et CNSA, en collaboration avec la DGAS, le GIS-IRESP et l'UNAFAM

Rapport final : Annexe 2 – Résumé des articles sur le thème Real World Functioning et Schizophrénie/trouble mental

[1] **Allaire JC, Gamaldo A, Ayotte BJ, Sims R, Whitfield K. Mild cognitive impairment and objective instrumental everyday functioning: the everyday cognition battery memory test. *Journal of the American Geriatrics Society*. 2009 Jan;57(1):120-5.**

OBJECTIVES: To examine the performance subjects with and without mild cognitive impairment (MCI) on an objective measure of everyday or real-world memory and subjective items assessing competency within the same instrumental domains; to determine whether the Everyday Cognition Battery (ECB) can uniquely predict MCI status. DESIGN: Cross-sectional. SETTING: Independent-living sample of urban dwelling elders in Baltimore Maryland. PARTICIPANTS: The sample consisted of 555 subjects ranging in age from 50 to 95 (mean 68.8 +/- 9.6). MEASUREMENTS: Objective performance in three instrumental domains (medication use, financial management, nutrition and food preparation) was assessed using the ECB Memory Test. Subjective performance within the same instrumental domains was also assessed. RESULTS: No difference was found between elderly subjects with and without MCI on the subjective items of instrumental activity of daily living (IADL) competency. A significant multivariate effect for cognitive status group ($F(3, 507)=21.88, P<.05, \eta^2=.12$) was observed for the objective measure, with participants with MCI performing, on average, significantly worse than those without on all three instrumental domain subscales. The medicine use (odds ratio (OR)=0.96, 95% confidence interval (CI)=0.94-0.99) and financial management (OR=0.93, 95% CI=0.91-0.96) subscales of the ECB Memory Test were unique and significant predictors of MCI. CONCLUSION: This study adds to the growing body of literature suggesting that cognitively complex IADLs might be compromised in elderly people with MCI. Moreover, the ECB Memory Test might be a clinically useful tool in evaluating real-world competency.

[2] **Altschuler EL. Play with online virtual pets as a method to improve mirror neuron and real world functioning in autistic children. *Medical Hypotheses*. 2008;70(4):748-9.**

Autism is a severe disease with no known cause and no cure or treatment. Recently, ourselves and subsequently others found that so-called "mirror neurons" - neurons that respond not only when a person moves, but upon observation of movement in another - are dysfunctional in autistic children. Here I suggest an easy, simple, inexpensive and fun method to improve mirror neuron functioning in autistic children, increase appreciation in autistic children for the theory of mind and thinking of others, and most importantly hopefully to improve real world functioning: play with virtual online pets that are the "embodiment" of a stuffed animal the child has. Adoption and then care and play with online pets forces, in a fun way, one to think about the world through the eyes and needs of the pet. A simple method to test this play with online virtual pet therapy is described.

[3] **Baird A, Podell K, Lovell M, McGinty SB. Complex real-world functioning and neuropsychological test performance in older adults. *The Clinical Neuropsychologist*. 2001 Aug;15(3):369-79.**

In stepwise regression analyses with Independent Living Scales (ILS) summary and subscale scores as the dependent variables, 8 of 10 psychometric measures from our battery for older adults emerged as important predictors for 69 patients referred for clinical assessment. The Dementia Rating Scale (DRS) score entered first for 6/8 analyses. However, measures of confrontation naming, oral reading, verbal fluency, paragraph recall, visual perception, complex attention, and depression also added explanatory power. Multiple Rs ranged from .66 to .88 except for the Social Adjustment subscale, which correlated only

with the depression scale.

[4] Bartels SJ, Pratt SI. Psychosocial rehabilitation and quality of life for older adults with serious mental illness: recent findings and future research directions. *Current Opinion in Psychiatry*. 2009 Jul;22(4):381-5.

PURPOSE OF REVIEW: The projected increase of Americans aged 65 years and older will have an unprecedented impact on the healthcare delivery system. As a result, new models to support individuals with serious mental illness (SMI) will become increasingly more important. This selective overview highlights recent reports addressing psychosocial functioning and interventions for older adults with SMI. RECENT FINDINGS: Recently published descriptive studies suggest that poor functional outcomes and lower quality of life among older people with SMI are strongly associated with social isolation, depression, cognitive impairment, and chronic medical illness. Recent research on psychosocial interventions includes evaluations of three different models of skills training, a supported employment intervention, and cognitive remediation. This research establishes psychosocial rehabilitation as feasible and potentially effective in improving functioning and quality of life in older adults with SMI. SUMMARY: Several important directions for future research focused on older adults with SMI are suggested by this overview. They include individually tailored rehabilitation, interventions that optimize social integration and decrease depressive symptoms, techniques that blend cognitive remediation with vocational rehabilitation, and integration of health promotion with psychosocial rehabilitation.

[5] Bowie CR, Depp C, McGrath JA, Wolyniec P, Mausbach BT, Thornquist MH, et al. Prediction of Real-World functional disability in chronic mental disorders: a comparison of schizophrenia and bipolar disorder. *American Journal of Psychiatry*. 2010 May;167(9):1116-24.

Objective Schizophrenia and bipolar disorder are associated with multidimensional disability. This study examined differential predictors of functional deficits in the two disorders. Method Community-dwelling individuals with schizophrenia (N=161) or bipolar disorder (N=130) were assessed with neuropsychological tests, symptom measures, and performance-based social and adaptive (i.e., everyday living skills) functional competence measures as well as three domains of real-world functioning: community and household activities; work skills; and interpersonal relationships. The authors used confirmatory path analysis to find the best-fitting models to examine the direct and indirect (as mediated by competence) prediction of the three domains of real-world functioning. Results In all models for both groups, neurocognition's relationship with outcomes was largely mediated by competence. Symptoms were negatively associated with outcomes but unassociated with competence, with the exception of depression, which was a direct and mediated (through social competence) predictor in bipolar disorder. In both groups, neurocognition was related to activities directly and through a mediated relationship with adaptive competence. Work skills were directly and indirectly (through mediation with social competence) predicted by neurocognition in schizophrenia and entirely mediated by adaptive and social competence in bipolar disorder. Neurocognition was associated with interpersonal relationships directly in the schizophrenia group and mediated by social competence in both groups. Conclusions Although there was greater disability in schizophrenia, neurocognition predicted worse functioning in all outcome domains in both disorders. These results support the shared role of neurocognition in bipolar disorder and schizophrenia in producing disability, with predictive differences between disorders in domain-specific effects of symptoms and social and adaptive competence.

[6] Bowie CR, Harvey PD. Cognition in schizophrenia: impairments, determinants, and functional importance. *The Psychiatric Clinics of North America*. 2005 Sep;28(3):613-33.

Recent findings support and add to earlier findings of cognitive dysfunction in schizophrenia. Deficits across neurocognitive domains such as attention, working memory, language skills, and executive functioning tend to be moderate, with the most pronounced deficits found in verbal learning and memory. All these neurocognitive domains are related to adaptive and social skills, with executive functions and verbal learning and memory showing more variance across more domains than other neuro-cognitive variables. Negative symptoms and neurocognitive domains, although correlated, are distinct and have differential pathways of change with treatment. General psychopathology symptoms, such as depression and anxiety, may become important treatment targets as strategies are developed for translating cognitive enhancement to real-world functional performance.

[7] Bowie CR, Reichenberg A, Patterson TL, Heaton RK, Harvey PD. Determinants of real-world functional performance in schizophrenia subjects: correlations with cognition, functional capacity, and symptoms. *The American Journal of Psychiatry*. 2006 Mar;163(3):418-25.

OBJECTIVE: Impairments in adaptive life skills are a major source of disability in patients with schizophrenia. The relationship between adaptive life skills in real-world settings and performance on neuropsychological tests may be complicated by other factors that interfere with deployment of skills. Assessment of the ability to perform life skills under

optimal conditions (i.e., assessment of functional capacity) has been proposed as a means to clarify these relationships. **METHOD:** The authors examined cross-sectional data from a study of the course of neuropsychological and adaptive life skills of older (age 50-85) schizophrenia patients (N=78). Functional capacity was examined with a performance-based measure (UCSD Performance-Based Skills Assessment), and case managers rated real-world adaptive functions (i.e., interpersonal skills, work skills, and community activities). Neuropsychological performance was assessed with a comprehensive battery, while symptoms were assessed with patient self-report and clinical ratings. **RESULTS:** Confirmatory path analyses were used to evaluate the effects of neuropsychological performance, functional capacity, and symptoms on the various domains of real-world functioning. Neuropsychological performance predicted functional capacity, which predicted all three domains of real-world functioning. Depression predicted interpersonal and work skills, while negative symptoms affected interpersonal skills independently of other predictors. **CONCLUSIONS:** Real-world adaptive life skills are predicted by neuropsychological performance, symptoms, and functional capacity. Neuropsychological performance contributes little to the prediction of real-world performance after accounting for functional capacity. In some domains, negative and depressive symptoms influenced real-world performance while not relating to functional capacity or neuropsychological performance.

[8] Bowie CR, Twamley EW, Anderson H, Halpern B, Patterson TL, Harvey PD. Self-assessment of functional status in schizophrenia. *Journal of Psychiatric Research*. 2007 Dec;41(12):1012-8.

With new treatments targeting features of schizophrenia associated with functional disability, there is a need to evaluate the validity of ratings of everyday outcomes. It is unknown whether patients can validly self-report on aspects of their functional status, which would be a potentially economical method for obtaining outcome data. In this study, 67 older schizophrenia outpatients provided self-ratings of everyday real-world functioning using the specific levels of functioning scale (SLOF). They were also administered assessments of neuropsychological performance, performance-based measures of functional capacity and social skills, clinical symptoms, and quality of life. Case managers, unaware of other ratings, also generated SLOF ratings. Based on discrepancy scores, participants were categorized as accurate raters (n=24), underestimators (n=16), or overestimators (n=27) of their functional status as compared to case managers' ratings. Patients' self-rated functional status was correlated with their subjective quality of life, but remarkably unassociated with case manager ratings of functional status or their own performance on functional capacity or social skills measures. Case manager ratings, however, were highly correlated with performance on functional capacity and social skills measures. Patients who underestimated their real world performance had better cognitive skills and greater self-rated depression than those who overestimated. Accurate raters demonstrated greater social skills than both overestimators and underestimators, while overestimators were most cognitively and functionally impaired. Accurate ratings of everyday outcomes in schizophrenia may require systematic observation of real world outcomes or performance-based measures, as self-reports were inconsistent with objective information.

[9] Brekke JS, Long JD, Kay DD. The structure and invariance of a model of social functioning in schizophrenia. *The Journal of Nervous and Mental Disease*. 2002 Feb;190(2):63-72.

The authors proposed and tested a model of social functioning in schizophrenia. The model consisted of five indicators: social competence, quality of relations, satisfaction, symmetry of relationships, and the number of close friends. The model combines proximal and distal, quality and quantity, and self-report and observer ratings of social functioning. It was designed to have ecological validity in that it reflects real-world social functioning, and the data are all gathered in reference to naturally occurring social contexts. Two independent community samples of individuals diagnosed with schizophrenia or schizoaffective disorder (N = 172; N = 166) were used to test the structure of the measurement model and its invariance across samples. Additional measures of social functioning, prognosis, and intrapsychic deficits were used to further assess the validity of the proposed social functioning construct. A single-factor model had acceptable fit with the data from sample 1. The single-factor model was found to be invariant across the two independent samples. Correlations with other measures in both samples provided additional evidence for the construct validity of the proposed measurement model of social functioning. Implications for research and practice are discussed.

[10] Bromley E. A collaborative approach to targeted treatment development for schizophrenia: a qualitative evaluation of the NIMH-MATRICES project. *Schizophrenia Bulletin*. 2005 Oct;31(4):954-61.

INTRODUCTION: In 2002, the National Institute of Mental Health (NIMH) initiated a multistakeholder research process designed to stimulate the development and evaluation of medications targeting the cognitive deficits associated with schizophrenia. The first phase, Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS), sought consensus on laboratory measures for cognition, clinical trial outcome measures, and drug registration requirements. MATRICS constitutes a unique drug development model because it targeted a specific endophenotype of schizophrenia and because it engaged academic, industry, and government stakeholders in a consensus-oriented process. This study offers a

preliminary qualitative evaluation of the NIMH-MATRICES project. **METHOD:** Interview data are used to describe how MATRICES participants regard 3 aspects of the development of cognitive medications: the definition of the treatment target, stakeholders' role in the early development process, and anticipated dissemination complexities. **RESULTS:** MATRICES participants describe the treatment target in highly varied ways and envision a wide range of public health benefits. MATRICES is perceived as inclusive, despite minimal representation from some end users. According to informants, clinical detection, documentation, and monitoring of cognition and functioning may prove problematic. More thoroughly than non-industry-employed informants, industry-employed MATRICES participants articulate strategies by which treatments can be integrated into clinical practice. **DISCUSSION:** The MATRICES process did not produce a clinical concept of cognitive impairment in schizophrenia, and significant challenges remain to be addressed regarding the rational clinical use of novel pharmaceuticals for cognition. Broader inclusion of end users in translational science projects may streamline implementation and facilitate improvements in real-world outcomes.

[11] Chaytor N, Temkin N, Machamer J, Dikmen S. The ecological validity of neuropsychological assessment and the role of depressive symptoms in moderate to severe traumatic brain injury. *Journal of the International Neuropsychological Society*. 2007 May;13(3):377-85.

Evaluating the ecological validity of neuropsychological tests has become an increasingly important topic. Previous research suggests that neuropsychological tests have a moderate level of ecological validity when predicting everyday functioning. The presence of depressive symptoms, however, may impact the relationship between neuropsychological tests and real world performance. The current study empirically tests this hypothesis in a sample of 216 participants with moderate to severe traumatic brain injury (TBI) who completed neuropsychological testing, self-report of mood symptoms, and report of everyday functioning six months post-injury. Contrary to some previous research and clinical lore, results indicated that depression was weakly related to neuropsychological test performance, although it was more strongly related to everyday functioning. Neuropsychological test performance was also significantly related to everyday functioning. The ecological validity of the neuropsychological tests together was not impacted by depressive symptoms, when predicting significant other ratings of functional status. However, patient self-report seems somewhat less related to neuropsychological performance in those with significant depressive symptoms. Neuropsychological test performance was equally related to self and other report of everyday functioning in patients without significant depressive symptoms.

[12] Corrigan PW, Penn DL. [Eds] *Social cognition and schizophrenia*. Washington, DC, US: American Psychological Association, 2001. 353 pp.

(from the jacket) Examines how people with schizophrenia understand and respond to their world. The authors present a theoretical and clinical frame for better understanding this thought disorder, which commonly wreaks havoc on all areas of functioning. This volume brings together the work of psychologists from Great Britain, Australia, and the US who have developed and tested social cognitive models of schizophrenia. The authors demonstrate how this paradigm holds promise for bridging the gap between lab-based tasks and real-world behavior, and for shedding light on the development, course, and outcome of schizophrenia.

[13] Fitzgerald PB, Montgomery W, de Castella AR, Filia KM, Filia SL, Christova L, et al. Australian schizophrenia care and assessment programme: real-world schizophrenia: economics. *The Australian and New Zealand Journal of Psychiatry*. 2007 Oct;41(10):819-29.

OBJECTIVE: The treatment of patients with schizophrenia consumes a considerable proportion of health service budgets, yet there have been few attempts to prospectively analyse the costs associated with this condition. Amid the current debate about where to invest scarce treatment resources to achieve optimal outcomes, real-world studies, such as the Schizophrenia Care and Assessment Programme (SCAP) contrast with hypothetically based models and provide comprehensive and broad-ranging data. **METHOD:** Direct health-care costs were prospectively studied in a cohort of 347 patients with schizophrenia in Dandenong, Australia over 3 years. Indirect costs were estimated from patient self-reported information. **RESULTS:** The average annual societal cost was AU \$32,160 per participant in the first year of the study, AU \$27,190 in the second year and AU \$29,181 in the third year. Indirect costs accounted for 46% of the total costs in the first year, 52% of the total costs in the second year and 50% of the total costs in the third year. The most expensive component of treatment was inpatient hospital care, which accounted for 42%, 34% and 36% of the total costs in the first, second and third year, respectively. **CONCLUSIONS:** Considerable resources are required for the provision of treatment for patients with schizophrenia. But for the majority of people in this cohort, funding assertive treatment programmes and measures to reduce hospitalization was accompanied with enhanced functioning and quality of life, as well as a reduction in long-term societal and government costs. The distribution of health-care costs is highly skewed, with a relatively small proportion of patients (39%) consuming the

majority of resources (80%). Improving rates of employment for this patient group could hold substantial benefits in reducing the overall economic and personal impact of this disorder.

[14] **Gioia D. A contextual study of daily living strategies in neurocognitively impaired adults with schizophrenia. *Qualitative Health Research*. 2006 Nov;16(9):1217-35.**

Schizophrenia is a severe mental illness often recognized as a degenerative neurocognitive condition. For some with the disorder, the impairment is fairly mild, but for others, neurocognitive abilities can be severely compromised. In this study, 5 individuals with schizophrenia had been assessed through a laboratory-based neurocognitive battery as having severe impairment. Their neurocognitive status was unknown to the author, and she was able to observe daily tasks and ask questions about strategies they employed while completing tasks, and analyze the data without preconceptions about their status. This study was guided by notions of ecological validity, which is the comparison between lab tests and real-world functioning. Despite their cognitive deficits, these individuals had remarkable strengths, which included drawing supportive people into their worlds to fulfill their daily tasks. These data contribute to the rehabilitation literature and propose remedies for struggles of daily living when one has schizophrenia.

[15] **Hamera E, Rempfer M, Brown C. Letter to the Editors: performance in the 'Real World': update on Test of Grocery Shopping Skills (TOGSS). *Schizophrenia Research*. 2005 Oct;78(1):111-12.**

Comments on the article by McKibben and colleagues (see record 2005-00423-007). We were surprised by the authors dismissal of existing, "real world" tests as too cumbersome. To assume that functioning in actual, "real world" circumstances can be accurately measured in simulations that are void of the multitude of stimulus cues and distractions that exist in daily life requires a leap of faith unsupported by research or logic. To attempt to measure functioning skills without accounting for the effect of whatever stress or distraction these actions exert on functioning will at best lead to erroneous conclusions. In summary, we commend the authors focus on performance measures and believe that an objective review of this field of research is long overdue. However, we believe it is premature at this time to dismiss any one approach toward measuring performance.

[16] **Harvey PD. Cognitive and functional effects of atypical antipsychotic medications. *The Journal of Clinical Psychiatry*. 2006 Oct;67(10):e13.**

Several meta-analyses and some direct comparative studies of atypical antipsychotics indicate that these medications may be more effective than conventional antipsychotic medications at enhancing cognition. However, differences in studies exist: short-term studies of cognitive enhancement may not provide similar results to long-term studies, while comparative studies are superior to meta-analyses. Direct measurement of changes in functional capacity may be a desirable study feature, and the population studied, including the treatment subjects receive, is likely to have a substantial impact on the results. Additionally, cognitive enhancement is not a stand-alone phenomenon. Depression and negative symptoms, for example, also affect an individual with schizophrenia and his or her functioning in the real world as opposed to within clinical studies.

[17] **Harvey PD, Keefe RS, Patterson TL, Heaton RK, Bowie CR. Abbreviated neuropsychological assessment in schizophrenia: reduction of different aspects of outcome. *Journal of Clinical and Experimental Neuropsychology*. 2009 May;31(4):462-71.**

The aim of this study was to identify the best subset of neuropsychological tests for prediction of several different aspects of functioning in a large (n = 236) sample of older people with schizophrenia. While the validity of abbreviated assessment methods has been examined before, there has never been a comparative study of the prediction of different elements of cognitive impairment, real-world outcomes, and performance-based measures of functional capacity. Scores on 10 different tests from a neuropsychological assessment battery were used to predict global neuropsychological (NP) performance (indexed with averaged scores or calculated general deficit scores), performance-based indices of everyday-living skills and social competence, and case-manager ratings of real-world functioning. Forward entry stepwise regression analyses were used to identify the best predictors for each of the outcomes measures. Then, the analyses were adjusted for estimated premorbid IQ, which reduced the magnitude, but not the structure, of the correlations. Substantial amounts (over 70%) of the variance in overall NP performance were accounted for by a limited number of NP tests. Considerable variance in measures of functional capacity was also accounted for by a limited number of tests. Different tests constituted the best predictor set for each outcome measure. A substantial proportion of the variance in several different NP and functional outcomes can be accounted for by a small number of NP tests that can be completed in a few minutes, although there is considerable unexplained variance. However, the abbreviated assessments that best predict different outcomes vary across outcomes. Future studies should determine whether responses to pharmacological and remediation treatments can be captured with brief assessments as well.

[18] **Heinrichs RW, Miles AA, Smith D, Zargarian T, Vaz SM, Goldberg JO, et al. Cognitive, clinical, and functional characteristics of verbally superior schizophrenia patients. *Neuropsychology*. 2008 May;22(3):321-8.**

The existence of small numbers of schizophrenia patients with superior ability in specific cognitive domains is implied by meta-analytic evidence as well as by occasional empirical reports. The authors identified 25 patients with superior (i.e., > or =90th percentile) ability on the Vocabulary subtest of the Wechsler Adult Intelligence Scale 3rd edition (Wechsler, 1997). These cognitively advantaged patients were compared with 22 healthy participants performing at the superior level and with 126 schizophrenia patients and 50 healthy participants scoring below the superior range. Verbally superior schizophrenia patients and verbally superior healthy participants had similar cognitive profiles and life skills performance, but diverged markedly in terms of independent "real-world" functioning. Verbally superior patients significantly outperformed more typical patients in other aspects of cognitive performance, life skills, and support requirements. However, severity of positive and negative symptoms was equivalent in the patient groups. Detailed biobehavioral study of cognitively exceptional patients may offer new insights into mechanisms mediating psychotic disorders.

[19] **Heydebrand G. Issues in rehabilitation of cognitive deficits in schizophrenia: a critical review. *Current Psychiatry Reviews*. 2007 Aug;3(3):186-95.**

Over the past 20 years, researchers have begun to examine whether remediation of cognitive deficits could improve cognitive performance in individuals with schizophrenia, using rehabilitation medicine models for traumatic brain injury. A number of recent meta-analyses have demonstrated that this type of intervention is of benefit, but numerous questions remain, including the crucial issue of whether improvement on cognitive measures corresponds to improvements on other tasks or to real-world functioning. Further, there has been little analysis of individual differences in response to cognitive remediation, despite increasing evidence for considerable heterogeneity of cognitive function in schizophrenia, ranging from near-normal cognitive function to global impairment. This article will provide a summary of the research in this area to date, and address many of the methodological issues that are relevant in studies on cognitive rehabilitation in schizophrenia, including a critical review of treatment and outcome variables. (PsycINFO Database Record (c) 2008 APA, all rights reserved)(from the journal abstract)

[20] **Humphreys K, Weisner C. Use of exclusion criteria in selecting research subjects and its effect on the generalizability of alcohol treatment outcome studies. *The American Journal of Psychiatry*. 2000 Apr;157(4):588-94.**

OBJECTIVE: Researchers have not systematically examined how exclusion criteria used in selection of research subjects affect the generalizability of treatment outcome research. This study evaluated the use of exclusion criteria in alcohol treatment outcome research and its effects on the comparability of research subjects with real-world individuals seeking alcohol treatment. **METHOD:** Eight of the most common exclusion criteria described in the alcohol treatment research literature were operationalized and applied to large, representative clinical patient samples from the public and private sectors to determine whether the hypothetical research samples differed substantially from real-world samples. Five hundred ninety-three consecutive individuals seeking alcohol treatment at one of eight treatment programs participated. A trained research technician gathered information from participants on demographic variables and on alcohol, drug, and psychiatric problems as measured by the Addiction Severity Index. **RESULTS:** Large proportions of potential research subjects were excluded under most of the criteria tested. The overall pattern of results showed that African Americans, low-income individuals, and individuals who had more severe alcohol, drug, and psychiatric problems were disproportionately excluded under most criteria. **CONCLUSIONS:** Exclusion criteria can result in alcohol treatment outcome research samples that are more heavily composed of white, economically stable, and higher-functioning individuals than are real-world samples of substance abuse patients seen in clinical practice, potentially compromising the generalizability of results. For both scientific and ethical reasons, in addition to studies that use exclusion criteria, outcome research that uses no or minimal exclusion criteria should be conducted so that alcohol treatment outcome research can be better generalized to vulnerable populations.

[21] **Kasper S, Resinger E. Cognitive effects and antipsychotic treatment. *Psychoneuroendocrinology*, 2003 Jan;28(Suppl1) Special issue: atypical antipsychotics: efficacy and tolerability achieving the optimum balance:27-38.**

Examines the possibility that treatments producing improvements in cognitive function in schizophrenia might, in turn, prove to have synergistic effects with psychosocial interventions. Rather than improving cognitive deficits, conventional antipsychotics may instead contribute to impairment. These damaging effects on cognition might be expected not only when antipsychotic drugs with intrinsic anticholinergic properties are used but also when anticholinergic drugs are prescribed for the relief of treatment-emergent extrapyramidal symptoms. The atypical antipsychotic drugs may be effective in this area, either in amelioration of the cognitive impairments that occur in schizophrenia or in arresting any continuing decline. New-generation atypical agents, such as quetiapine and risperidone, have minimal intrinsic anticholinergic effects, which suggest that some of

the additional negative effects on cognition can be avoided. A number of large-scale, long-term follow-up studies of atypical antipsychotics are currently underway, in 'real world' settings, to assess not only control of symptoms of schizophrenia but also improvement in social, occupational, and inter-personal functioning. (PsycINFO Database Record (c) 2008 APA, all rights reserved)

[22] Keefe RS. Cognitive deficits in patients with schizophrenia: effects and treatment. The Journal of Clinical Psychiatry. 2007;68 Suppl 14:8-13.

The average patient with schizophrenia performs on cognitive tests at the lowest 5% to 10% of the general population. Cognitive impairments impact patients on virtually every aspect of functioning, interfere with patients' ability to engage in real-world tasks, and affect long-term outcome. Therefore, cognitive deficits should be included in the diagnostic criteria for schizophrenia. Clinicians need to focus treatment options on helping patients to regain premorbid levels of cognitive functioning.

[23]Keefe RS, Poe M, Walker TM, Harvey PD. The relationship of the Brief Assessment of Cognition in Schizophrenia (BACS) to functional capacity and real-world functional outcome. Journal of Clinical and Experimental Neuropsychology. 2006 Feb;28(2):260-9.

The Brief Assessment of Cognition in Schizophrenia (BACS) assesses five different domains of cognitive function with six tests, and takes about 30-35 minutes to complete in patients with schizophrenia. Previous work has demonstrated the reliability of this measure, and its sensitivity to the deficits of schizophrenia. However, the relationship of this brief cognitive measure to functional outcome has not been determined. Further, future registration trials for potentially cognitive enhancing compounds may not only assess efficacy with cognitive performance measures, but with assessments of real-world functional outcome and functional capacity. The purpose of this study was to determine the relationship between the BACS and a potential co-primary measure for treatment studies of cognition in schizophrenia, and to determine if such a measure accounts for significant variance in functioning beyond that provided by cognitive function. The current study assessed 60 patients with schizophrenia over the course of six months. Cognitive functions were measured with the BACS. Functional capacity was measured with the UCSD Performance-based Skills Assessment (UPSA). Real-world functional outcome was measured with the Independent Living Skills Inventory (ILSI). BACS composite scores were significantly correlated with functional capacity as measured by the UPSA ($r = .65$, $df = 55$, $p < .001$), and real-world functional outcome as assessed by the ILSI ($r = .37$, $df = 56$, $p = .005$). In multiple regression analyses, UPSA scores did not account for additional variance in real-world functioning beyond that accounted for by the BACS. These data suggest that brief cognitive assessments such as the BACS are able to assess aspects of cognition that are related to important functional measures in clinical trials of cognitive enhancement. They also suggest that the measures being considered as potential co-primary indicators of cognitive function for registration trials are significantly correlated with cognition as assessed by brief cognitive assessments.

[24] Keefe RS, Poe M, Walker TM, Kang JW, Harvey PD. The Schizophrenia Cognition Rating Scale: an interview-based assessment and its relationship to cognition, real-world functioning, and functional capacity. The American Journal of Psychiatry. 2006 Mar;163(3):426-32.

OBJECTIVE: Interview-based measures of cognition may serve as potential coprimary measures in clinical trials of cognitive-enhancing drugs for schizophrenia. However, there is no such valid scale available. Interviews of patients and their clinicians are not valid in that they are unrelated to patients' levels of cognitive impairment as assessed by cognitive performance tests. This study describes the reliability and validity of a new interview-based assessment of cognition, the Schizophrenia Cognition Rating Scale (SCoRS), that involves interviews with patients and informants. **METHOD:** Sixty patients with schizophrenia were assessed with the SCoRS and three potential validators of an interview-based measure of cognition: cognitive performance, as measured by the Brief Assessment of Cognition in Schizophrenia (BACS); real-world functioning, as measured by the Independent Living Skills Inventory; and functional capacity, as measured by the University of California, San Diego, Performance-Based Skills Assessment (UPSA). **RESULTS:** The SCoRS global ratings were significantly correlated with composite scores of cognitive performance and functional capacity and with ratings of real-world functioning. Multiple regression analyses suggested that SCoRS global ratings predicted unique variance in real-world functioning beyond that predicted by the performance measures. **CONCLUSIONS:** An interview-based measure of cognition that included informant reports was related to cognitive performance as well as real-world functioning. Interview-based measures of cognition, such as the SCoRS, may be valid coprimary measures for clinical trials assessing cognitive change and may also aid clinicians desiring to assess patients' level of cognitive impairment.

[25] Kingsnorth S, Healy H, Macarthur C. Preparing for adulthood: a systematic review of life skill programs for youth

with physical disabilities. Journal of Adolescent Health. 2007 Oct;41(4):323-32.

PURPOSE: With advances in health care, an increasing number of youth with physical disabilities are surviving into adulthood. For youth to reach their full potential, a number of critical life skills must be learned. Specific learning opportunities are important as youth with physical disabilities may be limited in the life experiences necessary to acquire these skills. The aim of this study was to determine the effectiveness of life skill programs emphasizing independent functioning in preparation for adulthood among youth with physical disabilities. **METHODS:** A comprehensive search of electronic databases from 1985 to 2006 was undertaken to identify empirical studies examining the effectiveness of life skill programs for youth and young adults with acquired and congenital physical disabilities. Eligible studies were those with a comparison group and that targeted life skills (as defined by the World Health Organization). **RESULTS:** Six studies met the inclusion criteria. All used a multi-component group intervention containing a real-world or role-playing experiential component. Five of the six studies demonstrated short-term improvements in targeted life skills. Conclusions are limited because of heterogeneity of interventions, skill focus, disabilities, and outcome measures with respect to the effectiveness of individual components of the programs. **CONCLUSION:** With more youth with physical disabilities surviving into adulthood, there is a need to ensure that they have the skills to successfully manage life demands. There are relatively few rigorously designed, published studies that have evaluated the effectiveness of life skill programs. Large-sample, randomized, controlled studies are needed.

[26] Kleinman L, Lieberman J, Dube S, Mohs R, Zhao Y, Kinon B, et al. Development and psychometric performance of the schizophrenia objective functioning instrument: an interviewer administered measure of function. Schizophrenia Research. 2009 Feb;107(2-3):275-85.

Existing measures for functional assessment do not adequately address the relationship between cognitive impairment and function. The Schizophrenia Outcomes Functioning Interview (SOFI) was developed to measure community functioning related to cognitive impairment and psychopathology. Following review of existing measures and discussion with experts, caregivers, and patients, content was generated for four domains: 1) living situation; 2) IADLs; 3) productive activities; and 4) social functioning. The final SOFI was constructed with items informing domain scores, and an interviewer-completed global rating for each domain. Psychometric characteristics of the SOFI were evaluated in a sample of 104 community residing patients with schizophrenia and their informants. Test-retest reliability was evaluated in a sub-sample of patient-informant dyads using ICC; all values were >0.70 for both patient-interviews (SOFI-P) and informant-interviews (SOFI-I). Inter-rater reliability ICCs ranged from 0.50 to 0.79 on a different sub-sample. The SOFI demonstrated adequate construct validity based on correlations with the PSP (range 0.58 to 0.76; $p<0.0001$) and the QLS ($p<0.001$). Some correlations between SOFI and PETIT scores were low to moderate ($p<0.05$). Discriminant validity was supported based on SOFI score comparisons for patient groups based on PANSS and BACS scores ($p<0.05$); SOFI scores differed between borderline and moderately ill patients as measured by the CGI-S ($p<0.05$). The SOFI expands on existing measures and more comprehensively captures functioning of patients in the real world than other performance-based (proxy) measures. The SOFI has good evidence supporting reliability and construct validity, and may be a useful measure of functional outcomes in schizophrenia.

[27] Koren D, Harvey PD. Closing the gap between cognitive performance and real-world functional outcome in schizophrenia: The Importance of Metacognition. Current Psychiatry Reviews. 2006 May;2(2):189-98.

Functional outcome in schizophrenia has received increased attention in recent years, as the knowledge that cognitive functioning is a major determinant of outcome has become widely accepted. While impaired cognitive functioning is the most consistent predictor of functional deficits in schizophrenia, the overlap is far from complete and cognition accounts for at most 50% of the variance in functional outcome. In this paper, we review the research on factors other than cognition that relate to functional skills deficits in schizophrenia and focus on several potential moderators between cognition and functional outcome. These factors include various affective and societal variables, as well as metacognition. Metacognitive processes include the ability to appraise the accuracy of one's knowledge and competence and to use these appraisals to adjust real-world behaviors accordingly. Metacognition is related to, but separate from social cognition as well as from formal, base-level cognitive test performance. An example of metacognitive process is the ability to monitor the limits of personal knowledge base, and seek assistance in situations where requisite information or skills are lacking. Being able to perform these monitoring and control operations can allow for suitable functional performance despite cognitive limitations. Conversely, failing to perform these operations can account for poor functional outcome despite intact cognitive abilities. We argue that metacognition is an important moderator between cognition and real-world function and that this factor, in contrast to societal variables, may be modifiable in individual patients with schizophrenia.

[28] Koren D, Seidman LJ, Goldsmith M, Harvey PD. Real-world cognitive--and metacognitive--dysfunction in schizophrenia: a new approach for measuring (and remediating) more "right stuff". Schizophrenia Bulletin. 2006

Apr;32(2):310-26.

While the role of impaired cognition in accounting for functional outcome in schizophrenia is generally established by now, the overlap is far from complete. Moreover, little is known about the potential mechanisms that bridge between cognition and functional outcome. The aim of this article is to aid in closing this gap by presenting a novel, more ecologically valid approach for neuropsychological assessment. The new approach is motivated by the view that metacognitive processes of self-monitoring and self-regulation are fundamental determinants of competent functioning in the real world. The new approach incorporates experimental psychological concepts and paradigms used to study metacognition into current standard neuropsychological assessment procedures. Preliminary empirical data that support and demonstrate the utility of the new approach for assessment, as well as remediation efforts, in schizophrenia are presented and discussed.

[29] Kraus MS, Keefe RS. Cognition as an outcome measure in schizophrenia. The British Journal of Psychiatry. 2007 Aug;50:s46-51.

BACKGROUND: Cognitive deficits are a core feature of schizophrenia. These deficits are not caused by medication or symptoms, and have a dramatic negative effect on real-world functioning. **AIMS:** To critically examine a selection of the most common batteries used to assess cognition in schizophrenia. **METHOD:** Literature review of cognitive assessment batteries for use in schizophrenia. **RESULTS:** A wide variety of neurocognitive test batteries have been developed or adapted to assess cognition in schizophrenia. These differ in time requirements, repeatability, ease of administration, degree of face validity, availability of co-normative data and degree to which results can be parsed into separate domains of cognitive functioning. The most appropriate depends on the setting and the question being addressed. **CONCLUSIONS:** Cognitive outcome measures have reshaped our understanding of schizophrenia and will be essential tools for unravelling the aetiology of the disease and designing more effective interventions.

[30] Kulkarni J, de Castella AR, Filia KM, Filia SL, Marston N, Montgomery W, et al. Australian Schizophrenia Care and Assessment Programme: real-world schizophrenia: outcomes. The Australian and New Zealand Journal of Psychiatry. 2007 Dec;41(12):969-79.

OBJECTIVE: It has been increasingly recognized that there is need to assess patient outcomes in schizophrenia across a broad range of dimensions. But few studies have attempted to do this in clinical populations and no systematic study has broadly assessed outcomes in schizophrenia in Australia using a longitudinal design. Thus, a real-world study, the Schizophrenia Care and Assessment Programme (SCAP), was structured to collect comprehensive information over time to inform policy debate and extend current knowledge about the course of schizophrenia in an Australian context. **Methods:** A cohort of 347 patients with schizophrenia was followed up over 3 years. Clinical outcomes, occupational and psychosocial functioning and quality of life were assessed at 6 monthly intervals, and resource utilization and costing data were collected continuously from internal and external databases as well as from participants directly. **RESULTS:** The participants as a group experienced an overall decline in positive and negative symptoms of schizophrenia, a reduction in general psychopathology and a reduction in severity of depression. There was an improvement in functioning, a reduction in mental health-related disability and an improvement in patient- and observer-rated quality of life. Change of severity within the variously assessed domains over time appeared to be relatively independent. **CONCLUSIONS:** In the present sample of schizophrenia patients treatment was associated with positive health outcomes; but outcomes across assessment domains did not closely correlate across time. The scrutiny of a broad range of patient outcomes will assist with the assessment of new treatment modalities and with service planning.

[31] Lauber C, Bowen JL. Low mood and employment: when affective disorders are intertwined with the workplace—A UK perspective. International Review of Psychiatry. 2010;22 (2):173-82.

Working is undoubtedly an important aspect of western life. As well as structuring time, it provides financial security, meaning, identity and social participation, and has a beneficial effect on long-term physical and mental well-being. Despite this, people with mental health conditions have the lowest employment rate of any disabled group, although many of them want to work and work is highly beneficial for their physical and mental health. Existing research on mental health problems and employment outcomes have tended to focus on interventions for people with severe mental illness. Little research exists on the relationship between affective disorders, mainly depression and anxiety, and employment. This review focuses on studies conducted in the UK. Its conclusion is that there is no single rigorous investigation to test the relationship between common mental disorders and vocational outcomes.

[32] Leung WW, Bowie CR, Harvey PD. Functional implications of neuropsychological normality and symptom remission in older outpatients diagnosed with schizophrenia: a cross-sectional study. Journal of the International

Neuropsychological Society. 2008 May;14(3):479-88.

Cognitive impairments in schizophrenia are well documented and correlated with functional disability. Although some patients demonstrate normal neuropsychological (NP) functioning, little is known about their functional disability. We examined the cross-sectional functional implications of NP normality and symptomatic remission in older outpatients diagnosed with schizophrenia or schizoaffective disorder, who were administered a NP battery and performance-based measures of functional and social competence, with their real-world functioning rated by case managers. NP status was classified by the General Deficit Score (GDS) and remission status was based on the Positive and Negative Syndrome Scale (PANSS), yielding four subsamples of patients: NP normal-remitted (n = 21), NP normal-symptomatic (n = 22), NP impaired-remitted (n = 90), and NP impaired-symptomatic (n = 97). NP normal patients demonstrated better functional and social competence and better ratings of real world functioning, after controlling for premorbid abilities. However, compared to normative data, NP normal patients manifested disability in several real-world domains, including residential status. These results suggest that NP status is a better predictor of functional outcome than symptom status or the interaction of the two factors. The disability seen in NP normal cases indicates that factors other than cognitive impairments may determine aspects of everyday outcomes in schizophrenia.

[33] Lin FR, Ceh K, Bervinchak D, Riley A, Miech R, Niparko JK. Development of a communicative performance scale for pediatric cochlear implantation. Ear and Hearing. 2007 Sep;28(5):703-12.

OBJECTIVE: Verbal communicative competence is the main objective after early cochlear implantation in deaf children. However, there are currently no validated instruments to assess a child's real-world communicative abilities. We adopted a rigorous methodological approach to systematically develop the Functioning after Pediatric Cochlear Implantation instrument (FAPCI), a family-centered communicative performance scale based on a conceptual model of functioning established by the World Health Organization. **DESIGN:** Qualitative instrument development was based on a systematic review of the literature, focus groups, and semistructured interviews with the parents of 2- to 5-yr-old children with cochlear implants and deafness experts. Further refinement and testing of the psychometric validity of the draft instrument was conducted using factor analysis and a cross-sectional sample of 75 parents of children with cochlear implants. Nonparametric and parametric regressions were then performed to investigate the association of FAPCI scores with duration of cochlear implant use to provide preliminary evidence for the instrument's nomological validity. **RESULTS:** The final 23-item, parent-proxy FAPCI instrument represents a unidimensional scale of the real-world communicative performance of 2- to 5-yr-old children with cochlear implants. The scale demonstrated excellent reliability (Cronbach's alpha ≥ 0.86), and there was strong evidence supporting the instrument's nomological validity. FAPCI scores were positively associated with duration of implant use ($p < .001$), and 4 yr of implant use were required before maximal FAPCI scores were achieved. **CONCLUSIONS:** Verbal communication is a critical developmental domain that allows for optimal future emotional, cognitive, and behavioral growth. The FAPCI instrument is the first validated instrument ever designed to assess real-world communicative performance of a child with a cochlear implant. The systematic approach taken to development may enable FAPCI to be sensitive to other communication-related disorders commonly seen in childhood or to serve as a model for the development of other disorder-specific instruments.

[34] Magliano L, Fiorillo A, Malangone C, De Rosa C, Maj M. Patient functioning and family burden in a controlled, real-world trial of family psychoeducation for schizophrenia. Psychiatric Services. 2006 Dec;57(12):1784-91.

OBJECTIVE: This study explored the effectiveness of a psychoeducational family intervention for schizophrenia on patients' personal and social functioning as well as on relatives' burden and perceived support. **METHODS:** Thirty-four mental health professionals from 17 public mental health centers in Italy selected 71 families of consumers with schizophrenia. Forty-two families were randomly assigned to a group that received the intervention for six months, and 29 families were assigned to a waiting list for six months. At baseline and six months later, validated tools were used to assess patients' clinical status, personal and social functioning, and social network as well as relatives' burden, social resources, and perception of professional support. **RESULTS:** In the intervention group the number of patients with poor or very poor global personal and social functioning decreased significantly, from 17 (47 percent) at baseline to nine (25 percent) at follow-up. A significant improvement was found for the intervention group in patients' social relationships, interests in obtaining a job, maintenance of social interests, and management of social conflicts. Twenty-seven patients (74 percent) reported that their social relationships had improved during the six-month period. For both the intervention and control groups, family burden significantly improved. Relatives' social contacts and perception of professional support significantly increased only in the intervention group. **CONCLUSIONS:** The results suggest that a psychoeducational family intervention may have a significant impact on functional outcomes of schizophrenia when provided to patients and caregivers in real-world settings.

[35]Matheis RJ, Schultheis MT, Tiersky LA, DeLuca J, Millis SR, Rizzo A. Is learning and memory different in a

virtual environment? The Clinical Neuropsychologist. 2007 Jan;21(1):146-61.

It has been suggested that virtual reality may provide a medium for producing neuropsychological measures with greater ecological validity. The present study examined the usefulness of virtual reality (VR) to assess learning and memory in individuals with traumatic brain injury (TBI). A total of 20 TBI participants were compared with 20 healthy controls on their ability to learn and recall 16 target items presented within a VR-based generic office environment. The results indicated that VR memory testing accurately distinguished the TBI group from controls. Additionally, non-memory-impaired TBI participants acquired targets at the same rate as HC participants. Finally, there was a significant relationship between the VR Office and a standard neuropsychological measure of memory, suggesting the construct validity of the task. These findings suggest that the VR Office provides a viable medium for measuring learning and memory. The present results provide preliminary support for the ecological validity of the VR Office, which ultimately can improve assessment of real-world functioning following TBI.

[36] Mausbach BT, Harvey PD, Pulver AE, Depp CA, Wolyniec PS, Thornquist MH, et al. Relationship of the Brief UCSD Performance-based Skills Assessment (UPSA-B) to multiple indicators of functioning in people with schizophrenia and bipolar disorder. Bipolar Disorder. 2010 Feb;12(1):45-55.

OBJECTIVE: This study assessed the relationship between multiple indicators of 'real-world' functioning and scores on a brief performance-based measure of functional capacity known as the Brief University of California San Diego (UCSD) Performance-based Skills Assessment (UPSA-B) in a sample of 205 patients with either serious bipolar disorder (n = 89) or schizophrenia (n = 116). **METHODS:** Participants were administered the UPSA-B and assessed on the following functional domains: (i) independent living status (e.g., residing independently as head of household, living in residential care facility); (ii) informant reports of functioning (e.g., work skills, daily living skills); (iii) educational attainment and estimated premorbid IQ as measured by years of education and Wide Range Achievement Test reading scores, respectively; and (iv) employment. **RESULTS:** Better scores on the UPSA-B were associated with greater residential independence after controlling for age, diagnosis, and symptoms of psychopathology. Among both bipolar disorder and schizophrenia patients, higher UPSA-B scores were significantly related to better informant reports of functioning in daily living skills and work skills domains. Greater estimated premorbid IQ was associated with higher scores on the UPSA-B for both schizophrenia and bipolar disorder participants. Participants who were employed scored higher on the UPSA-B when controlling for age and diagnosis, but not when controlling for symptoms of psychopathology. **CONCLUSIONS:** These data suggest the UPSA-B may be useful for assessing capacity for functioning in a number of domains in both people diagnosed with schizophrenia and bipolar disorder.

[37] Mazza M, Mandelli L, Di Nicola M, Harnic D, Catalano V, Tedeschi D, et al. Clinical features, response to treatment and functional outcome of bipolar disorder patients with and without co-occurring substance use disorder: 1-year follow-up. Journal of Affective Disorders. 2009 May;115(1-2):27-35.

INTRODUCTION: Bipolar disorder patients (BP) with comorbid Substance Use Disorder (SUD) may present clinical features that could compromise adherence and response to pharmacological treatment. The purpose of this study was to examine clinical and psychopathological features of BP with and without comorbid SUD in a real-world setting. **METHODS:** The sample was composed by 131 affective patients. Sixty-five patients were affected by Bipolar Disorder I (BP-I, 49.2%), 29 by Bipolar Disorder II (BP-II, 22.3%) and 37 by Cyclothymic Disorder (CtD, 28.5%), according to DSM-IV. Sixty-six patients were diagnosed for a comorbid SUD. All patients have been submitted to psychometric assessment with Hamilton Depression Rating Scale (HDRS), Hamilton Anxiety Rating Scale (HARS), Young Mania Rating Scale (YMRS), Global Assessment Scale (GAS), Social Adjustment Self-reported Scale (SASS), Quality of Life Scale (QoL), at baseline and repeated follow-up periods (1, 3, 6, 12 months). **RESULTS:** BP comorbid for SUD were more likely diagnosed as BP-II and CtD and were less likely to present a moderate-severe manic symptomatology. Furthermore, personality disorders were more frequent in SUD patients than in non-comorbid BP. BP with SUD were not different for primary outcome measure (HDRS, HARS, YMRS, GAS) from non-comorbid BP; however, BP with SUD were significantly more impaired in social functioning (SASS) at any stage of the follow-up and poor functioning increased the risk of relapse in substance use during treatment. Finally, SUD comorbidity did not represent a risk factor for treatment drop-out, while in our sample young age, low treatment dosage and BP-I diagnosis were significantly associated with drop-out. **DISCUSSION:** The primary finding of this work is that BP with comorbid SUD are significantly more compromised in social functioning. Second, these patients were less likely to be diagnosed for BP-I and to present a severe manic symptomatology. Finally, we found that the diagnosis of SUD, but young age, low treatment dosage and BP-I diagnosis to be risk factors for treatment drop-out. Physicians should be alert to these differences in their clinical practice.

[38] McClure MM, Bowie CR, Patterson TL, Heaton RK, Weaver C, Anderson H, et al. Correlations of functional

capacity and neuropsychological performance in older patients with schizophrenia: evidence for specificity of relationships? *Schizophrenia Research*. 2007 Jan;89(1-3):330-8.

BACKGROUND: Neuropsychological (NP) performance is a consistent correlate of everyday functioning in schizophrenia, but it is unclear whether relationships between individual NP ability areas and domains of everyday functioning are general or specific. Assessments of real-world everyday functioning may be influenced by environmental and social factors (e.g., social security, disability status, opportunities and restrictions in living situations). This study examined the specificity of the relationships between different NP abilities and performance-based measures of social and living skills. **METHODS:** 181 ambulatory older (age>50) patients with schizophrenia were examined with NP tests measuring episodic and working memory, executive functioning, verbal fluency, and processing speed. All subjects performed tasks examining social (Social Skills Performance Assessment: SSPA) and everyday living (UCSD Performance Based Skills Assessment: UPSA) skills. **RESULTS:** Using canonical analysis, the NP variables were used to predict the functional capacity measures. The analysis found that 37% of the variance in the functional capacity and NP measures was shared, $X^2(2) (54)=106.29, p<.001$. Two canonical roots described the cognitive variables and the roots were differentially associated with everyday living and social skills. The root loading on processing speed, episodic memory, and executive functions were associated with UPSA scores, while the root loading on working and episodic memory and verbal fluency were associated most strongly with social competence. **IMPLICATIONS:** Social and everyday living skills deficits in patients with schizophrenia may reflect generally independent domains of functional outcome, linked through cognitive performance. The data suggest that somewhat different cognitive processes are associated with these two domains of functional capacity, although there appears to be some overlap, which may be due to the nature of the NP tests employed.

[39] Mindt MR, Cherner M, Marcotte TD, Moore DJ, Bentley H, Esquivel MM, et al. The functional impact of HIV-associated neuropsychological impairment in Spanish-speaking adults: a pilot study. *Journal of Clinical and Experimental Neuropsychology*. 2003 Feb;25(1):122-32.

Among English-speaking adults, HIV-associated neuropsychological (NP) impairments have been associated with problems in everyday functioning, including ability to function at work and drive an automobile. Latinos account for a disproportionate number of HIV/AIDS cases nationwide, and a significant segment of this population is primarily Spanish speaking. We have previously developed an assessment that evaluates English-speakers on a variety of instrumental activities of daily living. In this pilot study, we used Spanish-language translations of our functional battery to investigate the cultural relevance of such measures, and to explore relationships between NP status and ability to perform important everyday tasks in HIV-infected Spanish-speakers. Sixteen HIV-infected monolingual Spanish-speaking adults received comprehensive, Spanish language NP testing and functional assessments included the following domains: Medication Management, Cooking, Finances, Shopping, and Restaurant Scenario. Results revealed that most of the functional tasks appeared culturally relevant and appropriate with minor modifications. NP-impaired participants were significantly more functionally impaired compared to NP-normals (88% vs. 13%, $p <.01$). Performances on the functional assessment and the NP battery were also related to indicators of real world functioning, including employment status and quality of life. These results, though preliminary, suggest that Spanish language functional assessments are potentially valid tools for detecting everyday functioning deficits associated with NP impairments in HIV-infected Spanish-speakers.

[40] Palmer BW, Dawes SE, Heaton RK. What do we know about neuropsychological aspects of schizophrenia? *Neuropsychology Review*. 2009 Sep;19(3):365-84.

Application of a neuropsychological perspective to the study of schizophrenia has established a number of important facts about this disorder. Some of the key findings from the existing literature are that, while neurocognitive impairment is present in most, if not all, persons with schizophrenia, there is both substantial interpatient heterogeneity and remarkable within-patient stability of cognitive function over the long-term course of the illness. Such findings have contributed to the firm establishment of neurobiologic models of schizophrenia, and thereby help to reduce the social stigma that was sometimes associated with purely psychogenic models popular during parts of the 20th century. Neuropsychological studies in recent decades have established the primacy of cognitive functions over psychopathologic symptoms as determinants of functional capacity and independence in everyday functioning. Although the cognitive benefits of both conventional and even second generation antipsychotic medications appear marginal at best, recognition of the primacy of cognitive deficits as determinants of functional disability in schizophrenia has catalyzed recent efforts to develop targeted treatments for the cognitive deficits of this disorder. Despite these accomplishments, however, some issues remain to be resolved. Efforts to firmly establish the specific neurocognitive/neuropathologic systems responsible for schizophrenia remain elusive, as do efforts to definitively demonstrate the specific cognitive deficits underlying specific forms of functional impairment. Further progress may be fostered by recent initiatives to integrate neuropsychological studies with experimental neuroscience, perhaps leading to

measures of deficits in cognitive processes more clearly associated with specific, identifiable brain systems.

[41] **Patterson TL, Harvey P. Real-world functioning and self-evaluation of functioning: brain structure, mood state, functional skills, and mortality. *American Journal of Geriatric Psychiatry*. 2008 Aug;16(8):617-20.**

This series of articles demonstrates the complexity faced by researchers attempting to characterize functioning in geriatric neuropsychiatric populations from different perspectives, for different uses, and across different disciplines. Taken together, these articles demonstrate that different ways of characterizing functioning, from self-report to performance-based capacity measures, yield quite different patterns of results. All these articles show that skills competence is multiply determined and that accuracy in self-evaluation is conditioned by several factors. A major challenge for research on all of the topics discussed in this set of articles is to determine how medication and psychosocial interventions affect the relationships described, and how they result in improved real-world functioning and subjective quality of life.

[42] **Perivoliotis DG. Self-reported and performance-based functioning in middle-aged and older outpatients with schizophrenia. *Dissertation Abstracts International: Section B: The Sciences and Engineering*. 2006;67(3-B):1712.**

The number of older patients with schizophrenia and their demand on the healthcare system are growing. Treatment of the disorder is expanding from symptom reduction to improvement of everyday functioning, but functioning is a complex construct and little is known about the validity of its assessment methods in middle-aged and older patients with schizophrenia. Performance-based measures test the ability to demonstrate functional skills such as financial management and shopping in a laboratory setting and have been proposed as an alternative to self-reports, which may be more susceptible to confounds such as cognitive impairment, depression, or poor insight. The purpose of this study was to evaluate the relationship between these measures and determine how well they correspond to indicators of "real-world" functioning in a group of 77 middle-aged and older outpatients with chronic schizophrenia. Symptoms were assessed with the Positive and Negative Syndrome Scale (PANSS) and Hamilton Rating Scale for Depression. A composite neuropsychological (NP) ability score was calculated from a group of tests that measured executive functioning, verbal memory, processing speed, and attention. Insight was measured with the Birchwood Insight Scale and self-reported and performance-based functioning were measured with the Independent Living Skills Survey (ILSS) and UCSD Performance-Based Skills Assessment (UPSA), respectively. An index score consisting of living situation, driving status, employment, and marital status was created as a measure of "real-world" functional outcome. Path analyses revealed that NP ability significantly predicted both self-reported (beta; = .35, $p < .05$) and performance-based (beta; = .60, $p < .01$) functioning and indirectly predicted real-world functional outcome through its effect on performance-based functioning. The self-report and performance-based measures were weakly correlated ($r = .08$, ns). The relationship between self-reported functioning and real-world outcome was weak ($r = .06$, ns) and not confounded by NP ability, depression, or insight. The results suggest that performance-based functioning is strongly determined by NP ability and that it is a better predictor of functional outcome than self-reported functioning in middle-aged and older patients with schizophrenia. Additional research is needed to clarify the construct of functioning and to develop more valid measures for it in this population.

[43] **Polissar NL, Fay GC, Jaffe KM, Liao S, Martin KM, Shurtleff HA, et al. Mild pediatric traumatic brain injury: adjusting significance levels for multiple comparisons. *Brain Injury*. 1994 Apr;8(3):249-63.**

The outcome following mild traumatic brain injury (TBI) is controversial. We addressed this topic in a study of neurobehavioural and 'real-world' functioning among 53 children with mild TBI and their matched controls, using statistical methods recently developed for multiple comparisons. Because the study involved calculation of 414 p-values, four methods of adjustment for multiple comparisons, including the Bonferroni method, were used to avoid 'false-positive' statistical significance. The additional three methods allowed greater insight into the data than provided by the standard Bonferroni adjustment. Results showed that at initial testing, three areas of 'real-world' functioning (eating, domestic and home/community living skills) had weak but statistically significant associations with mild injury. No other specific areas of neuro-behavioural or 'real-world' functioning had plausible associations with the injury either initially, at 1 year, or when changes over the year were considered. However, the adjustment for multiple comparisons provided additional results. There were statistical significant associations of the injury with the entire domain of neurobehavioural variables both initially and at 1 year. These results suggest that the injury affects a spectrum of neurobehavioural skills weakly, rather than a single area substantially. The gain from using multiple comparison methods is discussed.

[44] **Pondé MP, Peireira CT, Leal B, Oliveira SC. The role of leisure in the lives of psychotic patients: a qualitative study. *Transcultural Psychiatry*. 2009 Jun;46(2):328-39.**

Quality of life is defined by indicators that measure the life patterns of a person or community in relation to an ideal model.

Leisure is an important component of quality of life and a tool for rehabilitation for patients with chronic psychosis. This qualitative study evaluated the role of leisure in the life of patients living with psychosis. Interviews with patients and relatives indicate that sociability is an important value for both groups. Deeper analysis, however, indicates that sociability is a culturally learned concept for patients and does not relate to their real needs. Improvement of symptoms and respect of individuality are more central to their well-being.

[45] **Premkumar TS, Pick J. Lamotrigine for schizophrenia. Cochrane database of systematic reviews (Online). 006(4):CD005962.**

BACKGROUND: Treating the 20-30% of people with schizophrenia whose symptoms are resistant to treatment can be problematic. Adding lamotrigine to ongoing antipsychotic treatment has shown to be of benefit in preliminary studies. **OBJECTIVES:** To evaluate the effects of adjuvant lamotrigine for people with schizophrenia and schizophrenia-like psychoses. **SEARCH STRATEGY:** We searched the Cochrane Schizophrenia Group's Register (February 2006) and inspected references of all identified studies for further trials. We contacted relevant authors of trials for additional information. **SELECTION CRITERIA:** We included all clinical randomised trials comparing lamotrigine with placebo or other antipsychotic augmentation strategies. **DATA COLLECTION AND ANALYSIS:** We extracted data independently. For homogenous dichotomous data we calculated random effects relative risk (RR), 95% confidence intervals (CI) and, where appropriate, numbers needed to treat (NNT) on an intention-to-treat basis. For continuous data, we calculated weighted mean differences (WMD). **MAIN RESULTS:** We found five relevant trials (total n=537), but no usable data on service outcomes, general functioning, behaviour, engagement with services, satisfaction with treatment or economic outcomes. Overall, reporting of data was poor. Those data we were able to use suggested that equal proportions of people allocated lamotrigine or placebo had no global response (n=208, 1 RCT, RR 1.06 CI 0.73 to 1.54). There was no significant difference between groups in the proportions of people whose mental state did not improve (n=297, 3 RCT, RR 1.26 CI 0.81 to 1.97). There was, however, a significant reduction in the PANSS total scores (n=67, 2 RCT, WMD -16.88 CI -8.57 to -25.18, p=0.0001), positive symptom sub-scale scores (n=65, 2 RCTs, WMD -5.10 CI -8.86 to -1.34) and negative symptom sub-scale scores (n=67, 2 RCTs, WMD -5.25, CI -7.07 to -3.43). Most cognitive measures showed no differences (n=329, 2 RCTs, RR not attaining BACS composite score of 0.5 1.10 CI 0.59 to 2.04). The proportion of participants leaving studies was about 25% at 12 weeks (n=537, 5 RCTs, RR 0.96 CI 0.71 to 1.29). The lamotrigine group did experience the outcome of any adverse effects significantly more frequent than people allocated placebo (n=429, 2 RCTs, RR 1.19 CI 1.02 to 1.38, NNH 10 CI 5 to 90). Among the many effects listed, only nausea was found to be significantly more (9%) in the lamotrigine group compared with placebo (n=465, 3 RCTs, RR 2.26 CI 1.05 to 4.88). **AUTHORS' CONCLUSIONS:** Evidence for use of lamotrigine as an adjuvant for people with schizophrenia is not robust and large well-designed, conducted and reported real-world randomised trials are needed to determine its place in everyday clinical practice.

[46] **Rabin LA, Barr WB, Burton LA. Effects of patient occupation and education variables on the choice of neuropsychological assessment instruments. Applied Neuropsychology. 2007;14(4):247-54.**

The current study surveyed test-usage practices of clinical neuropsychologists to determine whether respondents varied their assessment batteries based on specific patient demographic characteristics. Respondents were 747 doctorate-level psychologists (40% usable response rate) affiliated with Division 40 of the American Psychological Association, National Academy of Neuropsychology, or the International Neuropsychological Society. Respondents read a vignette about a traumatic brain injury patient and subsequently reported the instruments they would utilize to assess this patient's memory, attention, executive functioning, and ability to return to work. There were three versions of the case study, which varied according to the patient's occupation and level of education. Results revealed that the reported proportion of only 9 of 516 instruments (1.7%) varied across classifications, indicating that some neuropsychologists slightly modified their test batteries based on patients' demographic characteristics. The implications of these findings are discussed in relation to enhancing predictions of real-world outcomes based on neuropsychological test data.

[47] **Raffard S, Gely-Nargeot MC, Capdevielle D, Bayard S, Boulenger JP. Learning potential and cognitive remediation in schizophrenia. Encephale. 2009 Sep;35(4):353-60.**

BACKGROUND: Many studies have stressed the importance of neurocognitive deficits in schizophrenia that represent a core feature of the pathology. Cognitive dysfunctions are present in 80% of schizophrenic patients, including deficits in attention, memory, speed processing and executive functioning, with well-known functional consequences on daily life, social functioning and rehabilitation outcome. Recent studies have stressed that cognitive deficits, rather than the positive or negative symptoms of schizophrenia, predict poor performance in basic activities of daily living. If it is possible to reduce psychotic symptoms and to prevent relapses with antipsychotic medication, it is not yet possible to have the same convincing impact on

cognitive or functional impairments. Cognitive remediation is a new psychological treatment which has proved its efficacy in reducing cognitive deficits. A growing literature on cognitive rehabilitation suggests possibilities that in schizophrenia, specific techniques are able to enhance an individual's cognitive functioning. **LITERATURE FINDINGS:** Presently, two distinct and complementary cognitive remediation methods have been developed: the compensatory and the restorative approaches: (A) restorative approaches attempt to improve function by recruiting relatively intact cognitive processes to fill the role of those impaired, or by using prosthetic aids to compensate for the loss of function; (B) in contrast, in the restorative approach cognitive deficits are targeted directly through repeated practice training. However, results concerning cognitive remediation remain inconsistent. It is clear that not all individuals with schizophrenia display cognitive impairment, and even among those who do, the specific pattern of cognitive functioning varies. Moreover, traditional neurocognitive assessment, with a single or static administration of cognitive measures, provides moderately good prediction of skills acquisition in schizophrenia. Among other factors such as motivation, awareness of having a disease and acuteness of symptomatology, some studies have exposed that a cognitive variable, learning potential could mediate in part the effectiveness of cognitive remediation. **DISCUSSION:** The concept of learning potential is used to explain some of the observed variability in cognitive functioning. Learning potential is the ability to attain and utilize cognitive skills after cognitive training; it is assessed by individual variation in performance across three consecutive administrations of the Wisconsin Card Sorting Test (WCST): a pretest with standard instruction procedures, a training phase with expanded instruction and a post test with only standard instruction. Three learner subtypes can be identified: "learners" who perform poorly at the pretest but improve performance during the post-test, "non-retainers" who perform poorly at pre-test and do not improve at post-testing and "high achievers" who perform well in the initial pretest and maintain their good performance across the other two administrations. The assessment of learning potential could predict, with other psychological measures such as insight and motivation, the most effective neurocognitive rehabilitation program for an individual patient, and could help the clinician to optimize patient outcome through appropriate individual management. **CONCLUSION:** Indeed, learning potential could represent a good cognitive predictor and indicator for rehabilitation in schizophrenia for clinicians and should be used in cognitive assessment practice. However, the individuals most likely to benefit from cognitive remediation, and whether changes in cognitive function translate into functional improvements, are as yet unclear.

[48] Ratner Y, Gibel A, Yorkov V, Ritsner MS. Effectiveness, safety, and tolerability of ziprasidone for treating schizophrenia patients undergoing usual care: a 12-month, open-label, flexible-dose, naturalistic observational trial. *Progress in Neuro-psychopharmacology & Biological Psychiatry*. 2007 Oct 1;31(7):1401-9.

OBJECTIVE: This is a first report from a long-term study aimed to evaluate efficacy, safety, tolerability, cognitive functioning, and quality of life outcomes during ziprasidone treatment of chronic schizophrenia patients in the "real-world". **METHOD:** Seventy clinically unstable schizophrenia patients with persistent symptoms or troublesome side effects were assigned to a 12-month, open-label, flexible-dose (40-160 mg/day), large-scale, naturalistic trial. Outcome measures were taken at baseline, 6, and 12 months, and included the Positive and Negative Syndrome Scale (PANSS), the Clinical Global Impression (CGI-S) scale, the Global Assessment of Functioning Scale (GAF) scores, treatment-emergent adverse events, body weight, and drug attitude. **RESULTS:** Thirty-two patients fully completed the study protocol. A discontinuation of treatment for any cause occurred in 54.3% of patients; the mean time until discontinuation was 4.4 +/- 2.7 months. A discontinuation due to lack of clinical efficacy was more predominantly linked to patient perception (25.7%) than to physicians' conclusions alone (8.6%), adverse events (11.4%), and other reasons (8.6%). After controlling daily dose of ziprasidone, concomitant medications and sex, ANCOVA revealed improvement in PANSS factors, and global functioning among patients who had completed the study. Improvement in PANSS and GAF dimensions was evident at a 6-month visit, and it continued until the endpoint. When a cutoff of 20% improvement of PANSS total scores was used, the response rate among completers was 43.8%. Most common side effects were: fatigue, sleep disturbances, and headache. Ziprasidone did not appear to be linked to weight gain. **CONCLUSION:** This study suggests that ziprasidone may be beneficial for long-term treatment of schizophrenia patients in terms of severity of symptoms, and general functioning. Ziprasidone is well tolerated during the long-term treatment of chronic schizophrenia patients undergoing usual care.

[49] Ready RE, Stierman L, Paulsen JS. Ecological validity of neuropsychological and personality measures of executive functions. *The Clinical Neuropsychologist*. 2001 Aug;15(3):314-23.

Associations between two types of measures of executive functions, namely, neuropsychological and personality, and measures of real-world behavior were investigated. Undergraduate students were administered neuropsychological measures of executive functions and completed a personality questionnaire developed to measure traits central to the construct of executive functions. Participants also reported on their behavior. Hierarchical regressions indicated that neuropsychological and personality measures of executive functions were significant predictors of different types of behavior. Neuropsychological

measures predicted work behaviors and personality measures predicted substance use, risk-taking, and aggressive behaviors. Findings highlight the importance of including personality assessment in standard neuropsychological assessment in order to maximize ability to predict real-world behaviors relevant to independent and socially responsible functioning.

[50] **Revheim N, Butler PD, Schechter I, Jalbrzikowski M, Silipo G, Javitt DC. Reading impairment and visual processing deficits in schizophrenia. *Schizophrenia Research*. 2006 Oct;87(1-3):238-45.**

Individuals with schizophrenia show magnocellular visual pathway abnormalities similar to those described in dyslexia, predicting that reading disturbance should be a common concomitant of schizophrenia. To date, however, reading deficits have not been well established, and, in fact, reading is often thought to be normal in schizophrenia based upon results of tests such as the WRAT, which evaluate single word reading. This study evaluated "real world" reading ability in schizophrenia, relative to functioning of the magnocellular visual pathway. Standardized psychoeducational reading tests and contrast sensitivity measures were administered to 19 patients and 10 controls. Analyses of between group differences were further refined by classification of participants into reading vs. non-reading impaired groups using a priori and derived theoretical models. Patients with schizophrenia, as a group, showed highly significant impairments in reading ($p < 0.04$ - $p < 0.001$), with particular deficits on tests of rate, comprehension and phonological awareness. Between 21% and 63% of patients met criteria for dyslexia depending upon diagnostic model vs. 0-20% of the controls. The degree of deficit correlated significantly with independent measures of magnocellular dysfunction. Reading impairment in schizophrenia reaches the level of dyslexia and is associated with compromised magnocellular processing as hypothesized. Findings related to symptoms, functioning and recommendations for reading ability assessment are discussed.

[51] **Revheim N, Schechter I, Kim D, Silipo G, Allingham B, Butler P, et al. Neurocognitive and symptom correlates of daily problem-solving skills in schizophrenia. *Schizophrenia Research*. 2006 Apr;83(2-3):237-45.**

Functional outcome for individuals with schizophrenia has been associated with cognitive impairment. Deficits in attention, memory, speed of information processing and problem-solving skills affect independent functioning, vocational performance, and interpersonal functioning. This study investigated the relationship between neurocognitive functioning, clinical symptoms and daily problem-solving skills in seriously and persistently ill persons. Thirty-eight inpatients and outpatients were administered a neurocognitive battery for attention, working memory, processing speed, perceptual organization, and executive functioning; and semi-structured clinical interviews using the BPRS and SANS. Estimates of daily problem-solving skills were obtained using the relevant factor subscale from the Independent Living Scales (ILS-PB). Daily problem-solving skills were significantly correlated with negative symptoms, processing speed, verbal memory, and working memory scores. A regression model using an enter method suggests that working memory and negative symptoms are significant predictors of daily problem-solving skills and account for 73.2% of the variance. Further analyses demonstrate that daily problem-solving skills and negative symptoms were significantly different for inpatients and outpatients and significantly correlated with community status. The findings suggest the ILS-PB has utility as a proxy measure for assessing real-world functioning in schizophrenia.

[52] **Rinaldi Miles, Miller Lynne, Perkins Rachel. Implementing the individual placement and support (IPS) approach for people with mental health conditions in England. *International Review of Psychiatry*. 2010 Jan;22(2):163-72.**

Despite the overwhelming evidence of the effectiveness of the individual placement and support (IPS) approach to vocational rehabilitation for people with mental health conditions, there is very limited evidence of implementation in the UK. Both government policy and national clinical guidelines have set out a need for the availability of this effective approach in favour of other approaches, yet implementation appears to be an exception rather than a rule. This paper sets out four key challenges to implementing the IPS approach within mental health services in England: fear on the part of professionals, individuals and their families; a culture of low expectations; a failure to provide the support that we know works, and the global 'credit crunch' recession. Using a framework from implementation science, this review identifies the key features of implementing IPS within routine clinical practice from the experience of two large mental health NHS trusts in England.

[53] **Roberts DL. Development and preliminary evaluation of a social cognition intervention for outpatients with schizophrenia spectrum disorders. *Dissertation Abstracts International: Section B: The Sciences and Engineering*. 2008;69(3-B):1970.**

Social functioning deficits (e.g., social skill, community functioning) are a core feature of schizophrenia. These deficits are only minimally improved via the frontline treatments for schizophrenia (e.g. medication, social skills training, cognitive-behavioral therapy). The current project addresses this limitation with the development of a psychosocial treatment for schizophrenia that targets social cognition. Social cognition is a set of cognitive processes applied to the recognition, adaptive processing, and effective use of social cues in real-world situations. This is a promising treatment target as social cognition

may be more strongly related to social functioning outcomes than traditional neurocognitive domains (Couture, Penn, & Roberts, 2006). Consistent with expert consensus, Social Cognition and Interaction Training (SCIT) is being developed based on a four-stage model of treatment. This dissertation focuses on the first two stages of this model: Treatment conceptualization and manual development, followed by pilot testing with outpatients with schizophrenia spectrum disorders. Two pilot trials were conducted, with the primary outcome of interest being social cognition (i.e., emotion perception, Theory of Mind, and attributional style). Secondary outcomes included social skill and need for closure. Study #1 used a quasi-experimental design to assess efficacy in a North Carolina (NC) sample, and Study #2 used an uncontrolled, pre-post design to assess effectiveness in a New York (NY) sample. Results were generally promising, as SCIT participants in both studies showed evidence of improvement in most outcome domains. Results and implications are discussed.

[54] Sbordone RJ. Limitations of neuropsychological testing to predict the cognitive and behavioral functioning of persons with brain injury in real-world settings. *NeuroRehabilitation*. 2001;16(4):199-201.

While neuropsychological tests have been designed to identify cognitive impairments stemming from a brain insult and their severity, the vast majority of these tests were never designed to predict how these patients were likely to function in real-world settings, live independently, return to work, or maintain competitive employment. No one specific neuropsychological test or measure can accurately predict how an individual who has sustained a brain insult will function in everyday or vocational settings. Predictions based on neuropsychological test data tend to be more accurate if the particular tasks utilized during testing closely match or simulate the individual's everyday and vocational demands. Predicting an individual's vocational potential also requires a careful assessment of his or her work and medical history, injury characteristics, emotional and behavioral functioning, motivation to return to work, and family circumstances.

[55] Sherer M, Novack TA, Sander AM, Struchen MA, Alderson A, Thompson RN. Neuropsychological assessment and employment outcome after traumatic brain injury: a review. *The Clinical Neuropsychologist*. 2002 May;16(2):157-78.

While there may be many reasons for obtaining neuropsychological assessment after traumatic brain injury (TBI), prediction of real world functioning is generally a key goal. The present paper reviews 23 studies concerning the relationship between neuropsychological test results and employment outcome after TBI. The review was conducted in accordance with guidelines developed by the Committee on Empirically Supported Practice of Division 40 (Neuropsychology) of the American Psychological Association. Results of the review support a Category A (strongly supported) recommendation for the use of early neuropsychological assessment to predict late employment outcome. Studies of late neuropsychological assessment and subsequent employment outcome and studies of concurrent neuropsychological assessment and employment outcome were inconclusive regarding either support or contraindication for neuropsychological assessment to predict employment outcome. Almost all studies conducted at these late or concurrent time points had significant limitations with regard to study type or adequacy of methodology. However, there is no conceptual basis for believing that neuropsychological findings obtained closer in time to assessment of employment outcome should be less predictive of this outcome than neuropsychological findings obtained at an earlier time.

[56] Silver CH. Ecological validity of neuropsychological assessment in childhood traumatic brain injury. *The Journal of Head Trauma Rehabilitation*. 2000 Aug;15(4):973-88.

Empirical investigation of the degree to which testing predicts children's real-world functioning following traumatic brain injury (TBI) is sparse. This article reviews the research in neuropsychology, which offers only moderate correlations between test scores and everyday functioning. This line of research is hindered by several methodological issues: difficulty translating performance on standardized testing into real-world capacities, measurement of real-world functioning, developmental factors, and the influence of intervening variables in the natural environment. Ecologically valid assessment may require multiple data sources. More research is needed to respond effectively to questions about children's everyday functioning after traumatic brain injury.

[57] St-Hilaire A, Docherty NM. Language reactivity and work functioning in schizophrenia. *Schizophrenia Research*. 2005 Jun 15;75(2-3):241-6.

Some studies have found that the speech of certain schizophrenia patients becomes more disordered in stressful laboratory situations. It is unknown, however, whether affective reactivity of speech is associated with stress responsiveness of symptoms in the real world. This study examines whether language-reactive patients report more stress-related impairments in work functioning than language-nonreactive patients. Forty-six patients provided speech samples and completed a work history interview. It was found that the language-reactive patients were more likely than the language-nonreactive patients to endorse items pertaining to social anxiety and difficulty relating to others as reasons for their work difficulties. This suggests that

language-reactive patients are more sensitive to social stressors than language-nonreactive patients.

[58] Suzuki T, Uchida H, Nomura K, Takeuchi H, Nakajima S, Tanabe A, et al. **Novel rating scales for schizophrenia - Targeted Inventory on Problems in Schizophrenia (TIP-Sz) and Functional Assessment for Comprehensive Treatment of Schizophrenia (FACT-Sz).** *Schizophrenia Research*. 2008 Dec;106(2-3):328-36.

OBJECTIVE: Many rating scales have been in use to evaluate various symptomatic domains, and eventually there are too many scales to be selected and widely utilized in busy real-world settings. Relevant, quick, and user-friendly assessment scales are needed to facilitate measurement-based treatment of schizophrenia. METHODS: The authors created unique convenient assessment scales: Targeted Inventory on Problems in Schizophrenia (TIP-Sz), and Functional Assessment for Comprehensive Treatment of Schizophrenia (FACT-Sz). The TIP-Sz consists of 10 items (behavioral dyscontrol/disorganization, hostility/agitation/violence, indifference/affective withdrawal/motor retardation, symptoms on mood/anxiety/obsession/compulsion, insight/reality testing, social competence/independence, adherence to treatment, therapeutic alliance/comfort of therapists on the situation, overall prognostic impression, and subjective well-being/satisfaction with therapy). They are all common and frequently problematic, and each item is rated from 0-10. The FACT-Sz evaluates psychosocial functioning of patients with a score of 0-100, and is judged entirely on an objective basis. Their correlations with the frequently utilized Positive and Negative Syndrome Scale (PANSS), Global Assessment of Functioning (GAF), and Clinical Global Impression-Severity subscale were determined. RESULTS: Data on 36 patients, assessed separately by four experienced psychiatrists, were analyzed. Under an excellent interrater reliability among raters (Intraclass correlation coefficients: 0.822-0.966), correlations among the scales were very high (Spearman's rho: 0.825-0.909), and other indicators of the scale were generally good. Specifically, the TIP-Sz and FACT-Sz could be rated at 1/3-1/4 of time to complete the PANSS and GAF. CONCLUSION: The TIP-Sz and FACT-Sz proved to be reliable and valid, which would be of value in daily clinical practice as a minimum standardized assessment set.

[59] Suzuki T, Uchida H, Watanabe K, Kashima H. **Treatment target in schizophrenia: a critical review and a clinical suggestion.** *Psychopharmacology Bulletin*. 2008;41(4):80-102.

Background: Patients with schizophrenia have many problems as well as symptoms, and various rating scales have been in use to address them. Method: The authors review past representative rating scales and some pivotal studies to focus on treatment target in schizophrenia. Results: Traditionally, positive symptoms have been the main target of treatment. However, other crucial domains such as negative and cognitive symptoms, and subjective perspectives are drawing due attention because of their clinical relevance. Given many domains to be addressed, there have eventually been too many assessment scales to be selected and widely utilized in real-world clinical settings, and there has been still no concrete consensus on which scales to utilize in a given situation, which is currently decided at the discretion of the investigators. Measurement is frequently difficult even with the existing assessments, especially as what constitutes an acceptable clinical status is hard to define, considering highly heterogeneous nature of the illness. Many rating scales are met with limitations especially in time and in pragmatic comprehensiveness, which often hinder their routine application in time-limited busy settings. Still, problems and functioning of patients are the reasonable target to evaluate for measurement-based treatment. Conclusions: The authors suggest assessment of problems resulting from symptoms together with objective functioning, which clinical psychiatrists are actually doing in everyday practice, would serve as a minimum set of standardized assessment in schizophrenia, and the newly developed TIP-Sz and FACT-Sz would serve for that purpose. Other crucial viewpoints could be supplemented with (subjective) assessment scales as appropriate.

[60] Titov N, Knight RG. **A computer-based procedure for assessing functional cognitive skills in patients with neurological injuries: the virtual street.** *Brain Injury*. 2005 May;19(5):315-22.

PRIMARY OBJECTIVE: The aim of the present investigation was to construct and pilot test a computer-based multi-tasking procedure that could be used to assess the ability of patients with neurological damage to remember instructions in the real world. RESEARCH DESIGN: A simulated street scene was constructed from a network of photographs and sounds that patients could move through using a touch screen. Three patients with severe, moderate or mild cognitive impairment were assessed on a range of neuropsychological tests and three multi-tasking procedures based in the street. The performance of each patient was compared with that of a matched control. PROCEDURE: Three tests were administered, each of which involved 'walking' along the length of the street once. On the first test, participants were given up to five errands to remember while moving along the street. On the other two tests they were given three instructions to carry out repeatedly (e.g. 'Record the name of the nearest shop when you hear a dog bark'). In one condition they were given the three instructions on a sheet they could consult and in the other they had no list. OUTCOMES AND RESULTS: In each case the patient performed more poorly on the multi-tasking test than the matched control. The patients' performance on the computer-based tests was

consistent with clinical descriptions of their memory-related deficits. **CONCLUSION:** The results illustrate the way in which computer presentation of naturalistic stimuli can be used to construct flexible and standardized tests of memory functioning that have enhanced ecological validity.

[61] Trauer T. Outcome measurement in chronic mental illness. *International Review of Psychiatry*. 2010 Jan;22(2):99-113.

This review begins with an outline of outcome measurement in the country where it has been most thoroughly implemented, namely Australia. There follows a consideration of what constitutes an outcome in mental illness generally, and chronic mental illness in particular. Some instruments, such as the Health of the Nation Outcome Scales (HoNOS), focus primarily on illness severity, and examples of their use in the area of chronic mental illness are presented. Other instruments, such as the Life Skills Profile (LSP), assess personal functioning or disability, and that literature is reviewed. One major area of attention in the chronically mentally ill is quality of life. Another fruitful approach to assessing outcome is to look at needs, especially unmet needs, for which the leading instrument is the Camberwell Assessment of Need; relevant findings are reviewed. The most recent area of interest is recovery. While several scales have been developed, there are as yet relatively few reports of their application with patients with chronic mental illness. The concluding section considers the benefits and weaknesses of using the same standard instruments with all consumers within a service, and shows the utility of outcome results in groups and individuals with generally small overall changes.

[62] van Erp NH, van Vugt M, Verhoeven D, Kroon H. Enhancing systematic implementation of skills training modules for persons with schizophrenia: three steps forward and two steps back? *Psychiatric Rehabilitation Journal*. 2009 Summer;33(1):50-2.

OBJECTIVE: This brief report addresses the systematic implementation of skills training modules for persons with schizophrenia or related disorders in three Dutch mental health agencies. **METHODS:** Information on barriers, strategies and integration into routine daily practice was gathered at 0, 12 and 24 months through interviews with managers, program leaders, trainers, practitioners and clients. **RESULTS:** Overall implementation of the skills training modules for 74% of the persons with schizophrenia or related disorders was not feasible. Implementation was impeded by an incapable program leader, organizational changes, disappointing referrals and loss of trainers. The agencies made important steps forward to integrate the modules into routine daily practice. **CONCLUSIONS:** A reach percentage of 74% in two years time is too ambitious and needs to be adjusted. Systematic integration of the modules into routine daily practice is feasible, but requires solid program management and continuous effort to involve clients and practitioners.

[63] Velligan DI, Kern RS, Gold JM. Cognitive rehabilitation for schizophrenia and the putative role of motivation and expectancies. *Schizophrenia Bulletin*. 2006 Jul;32(3):474-85.

Cognitive rehabilitation (CR) approaches seek to enhance cognitive processes or to circumvent cognitive impairments in schizophrenia in an effort to improve functional outcome. In this review we examine the research findings on the 8 evidence-based approaches to cognitive remediation listed in the 2005 Training Grid Outlining Best Practices for Recovery and Improved Outcomes for People With Serious Mental Illness, developed by the American Psychological Association Committee for the Advancement of Professional Practice. Though the approaches vary widely in theoretical orientation and methods of intervention, the results are, for the most part, encouraging. Improvements in attention, memory, and executive functioning have been reported. However, many persons with schizophrenia are more impaired in real-world functioning than one would expect given the magnitude of their cognitive deficits. We may need to look beyond cognition to other targets such as motivation to identify the reasons that many persons with schizophrenia demonstrate such marked levels of disability. Although a number of current CR approaches address motivation to varying degrees, treating motivation as a primary target may be needed to maximize CR outcomes.

[64] Williams LM, Whitford TJ, Flynn G, Wong W, Liddell BJ, Silverstein S, et al. General and social cognition in first episode schizophrenia: identification of separable factors and prediction of functional outcome using the IntegNeuro test battery. *Schizophrenia Research*. 2008 Feb;99(1-3):182-91.

OBJECTIVE: It is increasingly recognized that cognitive assessments, unlike symptom ratings, provide a reliable predictor of functional outcome in schizophrenia. This study evaluated the utility of the 'IntegNeuro' computerized test battery for assessing cognition in first episode schizophrenia. We determined the presence of separable factors of general and social cognition, their equivalence to the consensus domains identified by the NIMH MATRICS project, and their effectiveness in predicting real world functional outcomes. **METHOD:** Fifty six first episode schizophrenia (FES) patients and 112 matched healthy controls were assessed on the touchscreen-based 'IntegNeuro' cognitive test battery and FES patients for social functioning (SOFAS)

and quality of life (WHOQOL-BREF). RESULTS: Principal components analysis identified i) six factors corresponding to MATRICS domains of general cognition ('Information Processing Speed', 'Verbal Recall', 'Working Memory Capacity', 'Sustained Attention/Vigilance', 'Verbal Processing', 'Executive Function'), ii) an 'Emotional Intelligence' factor corresponding to the MATRICS social cognition domain, and iii) an additional 'Sensori-Motor Function' factor of general cognition and 'Negativity' factor of social cognition. Patients showed impairments relative to controls across all factors, but especially for Working Memory Capacity, followed by Verbal Memory, Sustained Attention/Vigilance and Negativity. These factors strongly predicted poorer social functioning in FES, along with poorer quality of life in psychological, social, and health satisfaction facets. CONCLUSION: The IntegNeuro battery has utility for assessing separable domains of general and social cognition in FES, which are predictive of real world outcomes. Thus, it may be appropriate for clinical application, including in multi-center trials targeting new treatments for cognition in schizophrenia.

[65] **Worrall L, McCooley R, Davidson B, Larkins B, Hickson L. The validity of functional assessments of communication and the Activity/Participation components of the ICDH-2: do they reflect what really happens in real-life? Journal of Communication Disorders. 2002 Mar-Apr;35(2):107-37.**

This paper aims to provide a better understanding of the nature of functional communication activities so that assessment and treatment efforts are based on a theoretical framework and empirical data. Three sources of information are discussed. The first is the Activity/Participation dimensions of the World Health Organization's International Classification of Functioning, Disability, and Health. The second source is existing assessments of functional communication. The final source is data obtained from observational studies conducted in our research unit. The studies have observed the everyday communication of people with aphasia, people with Traumatic Brain Injury (TBI), and patients in hospital. The simplification of real-life communication in the WHO classification scheme, the variability of item sampling in existing assessments, and the complexity of communication observed in real-life settings has led to the conclusion that there are three levels of functional communication assessment: generic, population-specific, and individualized. Clinicians may choose which level suits their purpose. When clinicians routinely choose from a range of sophisticated functional assessments to inform their therapy, the seed that Martha Taylor Sarno planted and nourished for the past 30 years or more will truly flourish throughout the world of speech-language pathology. Learning outcomes: As a result of this activity, participants will (1) understand the theoretical framework and data base that motivates assessment and treatment of functional communication activities, (2) be able to discuss the World Health Organization's Classification of Functioning, Disability and Health and (3) gain information about functional assessment and observational sampling of real world communication activities across three levels.

[66] **Zaretsky A, Lancee W, Miller C, Harris A, Parikh SV. Is cognitive-behavioural therapy more effective than psychoeducation in bipolar disorder? Canadian Journal of Psychiatry. 2008 Jul;53(7):441-8.**

OBJECTIVE: Psychosocial research in bipolar disorder (BD) has not yet assessed the relative benefits of a short course of psychoeducation (PE), compared with a longer course of cognitive-behavioural therapy (CBT) containing psychoeducational principles. This pilot study evaluated the efficacy and added benefit of adding a course of CBT to a standard course of brief PE, as maintenance therapy for BD. METHOD: Seventy-nine consenting adult men and women with BD on stable medication regimens, who were in full or partial remission from an index episode (BD I = 52; BD II = 27), were randomized to receive either 7 sessions of individual PE, or 7 sessions of PE followed by 13 additional individual sessions of CBT. Weekly mood and medication adherence was rated using the National Institute of Mental Health's Life Chart Method, while psychosocial functioning and mental health use were assessed monthly. RESULTS: Forty-six participants completed the entire study. Participants who received CBT in addition to PE experienced 50% fewer days of depressed mood over the course of one year. Participants who received PE alone had more antidepressant increases compared with those who received CBT. There were no group differences in hospitalization rates, medication adherence, psychosocial functioning, or mental health use. CONCLUSIONS: Pilot data from this real-world study suggest that even after medication treatment has been optimized, a longer course of adjunctive CBT may offer some additional benefits over a shorter course of PE alone for the maintenance treatment of BD. Larger randomized controlled trials with equal treatment lengths are indicated.

Appel à projets de recherche 2008

« Handicap psychique, autonomie, vie sociale »

DREES-MiRe et CNSA, en collaboration avec la DGAS, le GIS-IRESP et l'UNAFAM

Rapport final : Annexe 3 – Résumés des articles sur le thème "Schizophrénie/handicap et insertion professionnelle"

[1] **Alptekin K, Erkoç S, Gögüs, AK, Kültür S, Mete L, Üçok A, Yazici KM. Disability in schizophrenia: Clinical correlates and prediction over 1-year follow-up. *Psychiatry Research*. 2005 Jun; 135(2):103-111.**

Schizophrenia may cause disability leading to restrictions on many domains of daily life such as hygiene, self-management, vocational and leisure activities, and family and social relationships. The aim of this study was to assess the level of disability with the Brief Disability Questionnaire (BDQ), developed by the World Health Organization, and to identify the clinical correlates and predictors of disability during a 1-year follow-up period in 382 patients with schizophrenia. All patients were assessed at the beginning of the study, and 168 (44%) of them were re-evaluated after 1 year. Total disability scores of the patients with schizophrenia were significantly decreased at follow-up. Female patients seemed to be more disabled than males. Disability showed a positive correlation with the total, positive symptoms and negative symptoms scores on the Brief Psychiatric Rating Scale, as well as scores on the UKU Side Effects Rating Scale. Patients with the disorganized subtype of schizophrenia and residual symptoms were more disabled than patients with other subtype diagnoses. Negative symptoms and duration of untreated psychosis were significant predictors of disability after 1 year. Early-onset schizophrenia had a twofold increased risk for developing disability. Disability in schizophrenia is a clinical phenomenon closely linked to negative symptoms and poor outcome.

[2] **Bachrach LL. Psychosocial rehabilitation and psychiatry in the treatment of schizophrenia--what are the boundaries? *Acta Psychiatrica Scandinavica* 2000 Suppl;407:6-10.**

OBJECTIVE: To examine the relationship between psychosocial rehabilitation and psychiatry with particular emphasis upon treatment of people who suffer from schizophrenia. METHOD: Current literature is examined in an effort to identify prevailing premises and myths held by each discipline as it relates to the other. RESULTS: A working definition of psychosocial rehabilitation is proposed, and nine interrelated concepts that constitute the belief system of that discipline are identified. CONCLUSION: Rehabilitation's biopsychosocial perspective provides a strong basis for joint enterprise with psychiatry in the care of people with schizophrenia. However, members of both disciplines must pursue active measures in order to effect co-operative treatment interventions.

[3] **Bae SW, Brekke JS, Bola JR. Ethnicity and treatment outcome variation in schizophrenia: a longitudinal study of community-based psychosocial rehabilitation interventions. *Journal of Nervous and Mental Disease*. 2004 Sep;192(9):623-8.**

The purpose of this study was to investigate cross-ethnic variations in prospective treatment outcomes over a period of 12 months from community-based psychosocial rehabilitation interventions for people with schizophrenia. Data were pooled from two similar studies of psychosocial rehabilitation for clients with schizophrenia conducted in the same urban settings. The final sample consisted of 226 people diagnosed with a schizophrenia spectrum disorder, consisting of 108 (48%) white subjects, 81 (36%) African American subjects, and 37 (16%) Latino subjects. Main analyses were performed using hierarchical linear modeling. Analyses indicated that both study groups demonstrated statistically significant rehabilitative improvement over a period of 12 months. Although African American subjects had a significantly slower rate of improvement (compared with white subjects) in social functioning, analyses in several other outcome domains generally revealed that all three ethnic groups showed similar change trajectories over time, with no additional ethnic-related differences reaching statistical significance. With the exception of slower social improvement for African Americans, the findings from this study suggest that community-based psychosocial rehabilitation interventions did not result in significantly poorer outcomes for the ethnic minority groups examined. Several important implications are discussed.

[4] **Bell MD, Bryson G. Work rehabilitation in schizophrenia: does cognitive impairment limit improvement? *Schizophrenia Bulletin*. 2001;27(2):269-79.**

Cognitive impairments may be an important contributor to disability in schizophrenia and may limit the rate of improvement in work rehabilitation. Thirty-three outpatients with schizophrenia or schizoaffective disorder who participated in a 6-month work rehabilitation program were assessed for symptom severity and administered neuropsychological testing at intake. Their work performance was evaluated biweekly using the Work Behavior Inventory. On each of five domains of work performance, 76 to 91 percent of subjects reached proficiency or improved significantly over 26 weeks. Individual differences in rate of improvement were robustly predicted by neuropsychological variables: Work Habits, $r^2 = 0.79$; Personal Presentation, $r^2 = 0.73$; Cooperativeness, $r^2 = 0.67$; Work Quality, $r^2 = 0.56$; Social Skills, $r^2 = 0.27$; Total, $r^2 = 0.44$. Neuropsychological measures had differential relationships to work domains. Individual differences in improvement were not predicted by symptom measures. These findings link cognitive impairment to disability and suggest that remediating or accommodating such deficits may be necessary for successful rehabilitation.

[5] **Bell M, Greig T, Gill P, Whelahan H, Bryson G. Work rehabilitation and patterns of substance use among persons with schizophrenia. *Psychiatric Services*. 2002 Jan;53(1):63-9.**

OBJECTIVE: The aim of this study was to identify patterns of substance use among participants in work rehabilitation, to identify symptom patterns associated with substance use, and to assess the impact of substance use on work rehabilitation outcomes. **METHODS:** Addiction Severity Index interviews were conducted and Positive and Negative Syndrome Scale ratings were obtained at the start of the study and again five months and 12 months later for 220 patients with schizophrenia or schizoaffective disorder who were already enrolled in a study of work rehabilitation. **RESULTS:** Eighty percent of the participants met Addiction Severity Index criteria for lifetime substance use, but 75 percent were abstinent at intake. During the 12-month follow-up period, abstinence rates remained above 66 percent. Participants with a lifetime history of cocaine use were more likely to return to substance use. The type of substance used was also related to distinct symptom patterns. Participants with past cocaine use had more severe hostility symptoms and less severe negative symptoms. No significant relationships were found between lifetime or current substance use and participation in the work rehabilitation program. **CONCLUSIONS:** Even though a high rate of lifetime substance use was observed in this sample, most participants were in stable remission of substance use throughout the one-year study. Substance use and work participation appeared to be semiautonomous: substance use did not directly affect work participation, and work participation did not directly affect substance use.

[6] **Bell MD, Fiszdon JM, Greig TC, Bryson GJ. Can older people with schizophrenia benefit from work rehabilitation? *Journal of Nervous and Mental Disease*. 2005 May;193(5):293-301.**

To determine whether older people with schizophrenia or schizoaffective disorder can benefit from work therapy as has been shown with their younger counterparts, 41 older patients (50+) were compared with 104 younger patients on their clinical and vocational outcomes while participating in a 6-month work therapy program. In an intent-to-treat analysis, both groups showed significant improvements in symptoms and quality of life at the conclusion of the active intervention, but there were no significant differences between age groups. In comparisons of biweekly Work Behavior Inventory scores for completers, older workers improved more than younger workers, particularly during the second half of the program. Results are in accord with previous evidence for the clinical and vocational benefits of work therapy and indicate that older people with schizophrenia or schizoaffective disorder can perform at least as well as their younger counterparts and respond similarly with improved symptoms and quality of life.

[7] **Bellack AS. Cognitive rehabilitation for schizophrenia: is it possible? Is it necessary? *Schizophrenia Bulletin*. 1992;18(1):43-50.**

Limitations of available psychosocial interventions combined with the increasing evidence that schizophrenia is characterized by diverse deficits in information processing has stimulated great interest in the possibility of cognitive rehabilitation. However, the current optimism seems unjustified. The precise role of information processing in the behavioral handicaps evidenced by schizophrenic patients is not clear, and the neuropsychologic and experimental psychopathology tasks used to assess information processing generally cannot specify precisely which cognitive functions are deficient. Thus, the choice of cognitive targets for rehabilitation is arbitrary. The strategies currently employed for rehabilitation emphasize an exercise model of treatment and the use of complex mnemonics. Neither approach has been successful in rehabilitating brain-injured patients, and preliminary results with schizophrenic patients are not very promising. It is concluded that the field might be better served by focusing on environmental change and compensatory strategies until we determine how and why schizophrenic patients fail.

[8] **Bellack AS, Gold JM, Buchanan RW. Cognitive rehabilitation for schizophrenia: problems, prospects, and**

strategies. Schizophrenia Bulletin. 1999;25(2):257-74.

Increasing awareness of the importance of neurocognitive impairments in schizophrenia has fostered considerable interest in the prospects for cognitive rehabilitation. Nevertheless, optimism has outpaced progress. We first review recent literature on the central assumptions that underlie cognitive rehabilitation, including the hypothesis that cognitive deficits play a central role in social disability and other problems schizophrenia patients experience in daily living, and that these impairments must be rectified if we are to achieve effective rehabilitation. We next discuss developments in knowledge about the neurobiology of schizophrenia that bear on the potential for cognitive rehabilitation and the selection of appropriate targets for intervention. Third, we propose a new research strategy for investigating cognitive functioning in schizophrenia and for examining the relationship of cognitive deficits to role functioning in the community: examining patients who have good vocational outcomes in order to identify strengths or compensatory factors that compensate for core deficits. We present new data that lend support to our proposed approach. We next discuss putative limits to cognitive rehabilitation based on data documenting cognitive deficits in healthy siblings and parents. Finally, we briefly describe an interim rehabilitation strategy that minimizes the load on cognitive processes rather than attempting to improve cognitive functioning.

[9] Boardman J, Grove B, Perkins R, Shepherd G. Work and employment for people with psychiatric disabilities. British Journal of Psychiatry. 2003 Jun;182(6):467-8.

Work is something that many of us take for granted, but many people with mental illness are excluded from work and are unlikely to gain or sustain open employment. This is despite the fact that the majority of people with mental illness wish to be engaged in meaningful activity. Being 'in work' has important implications for the personal well-being, social status and civil rights of those with mental illness, as well as for their use of health and social services. Work offers considerable personal and economic benefits for users of mental health services. The authors review these issues and conclude with a discussion on vocational rehabilitation in the UK and the implications for service delivery to the mentally ill.

[10] Bond GR, Resnick SG, Drake RE, Xie H, McHugo GJ, Bebout RR. Does competitive employment improve nonvocational outcomes for people with severe mental illness? Journal of Consulting and Clinical Psychology. 2001 Jun;69(3):489-501.

The authors examined the cumulative effects of work on symptoms, quality of life, and self-esteem for 149 unemployed clients with severe mental illness receiving vocational rehabilitation. Nonvocational measures were assessed at 6-month intervals throughout the 18-month study period, and vocational activity was tracked continuously. On the basis of their predominant work activity over the study period, participants were classified into 4 groups: competitive work, sheltered work, minimal work, and no work. The groups did not differ at baseline on any of the nonvocational measures. Using mixed effects regression analysis to examine rates of change over time, the authors found that the competitive work group showed higher rates of improvement in symptoms; in satisfaction with vocational services, leisure, and finances; and in self-esteem than did participants in a combined minimal work-no work group. The sheltered work group showed no such advantage.

[11] Brekke JS, Ansel M, Long J, Slade E, Weinstein M. Intensity and continuity of services and functional outcomes in the rehabilitation of persons with schizophrenia. Psychiatric Services. 1999 Feb;50(2):248-56.

OBJECTIVE: The intensity and continuity of services delivered to individual clients in a community-based psychosocial rehabilitation program were examined in relationship to functional changes in the clients that occurred during the first 12 months of the program. **METHODS:** Subjects were 41 clients with schizophrenia or schizoaffective disorder who were admitted to an intensive psychosocial rehabilitation program. Measures of clinical and psychosocial functioning were derived from client interviews administered at baseline and six and 12 months later. Measures of service intensity and continuity came from data gathered daily by staff over 12 months. **RESULTS:** The results supported the hypotheses that greater intensity and longitudinal continuity of services are related to more client improvement as indicated by reduced rates of hospitalization and improved psychosocial functioning after both six and 12 months. Although clients' symptom levels increased over time, a significant relationship was noted between service intensity and continuity and better symptom outcomes after 12 months. Multiple regression analyses indicated that an average of 22 percent, and as much as 28 percent, of the change in clinical and functional outcomes after 12 months of rehabilitation was explained by the intensity and longitudinal continuity of services. **CONCLUSIONS:** Clients who received more contact hours with staff and who had fewer gaps in service delivery achieved greater rehabilitative improvement in social, work, and independent-living domains and had fewer days of hospitalization. Based on these findings, clinicians, administrators, and researchers can assume that the intensity and longitudinal continuity of services are important to achieving rehabilitative outcomes in some community-based psychosocial rehabilitation models.

[12] Brekke JS, Hoe M, Green MF. Neurocognitive change, functional change and service intensity during community-

based psychosocial rehabilitation for schizophrenia. *Psychological Medicine*. 2009 Feb;26:1-11.

BACKGROUND: This study examined the magnitude of neurocognitive change during 1 year of community-based psychosocial intervention, whether neurocognitive change and functional change were linked, and how neurocognitive change combined with service intensity to facilitate functional change. **Method** A total of 130 individuals diagnosed with schizophrenia were recruited upon admission to four community-based psychosocial rehabilitation programs. Subjects were assessed at baseline, 6 and 12 months on role functioning and symptom measures. Neurocognition was measured at baseline and 12 months. Service intensity was the number of days of treatment attendance during the study period. Latent mean difference tests and Latent Growth Curve Models (LCGMs) were used to examine the study hypotheses. **RESULTS:** There was statistically and clinically significant functional improvement over 12 months. Neurocognition improved significantly over time. Seventy-six (58%) of the sample showed neurocognitive improvement and 54 (42%) did not. There was a significant rate of functional enhancement in the neurocognitive improver group. There was a non-significant rate of functional change in the neurocognitive non-improver group. Neurocognitive improvers showed functional improvement that was 350% greater than neurocognitive non-improvers. Service intensity did not vary between neurocognitive improvers and non-improvers but there was a strong interaction between neurocognitive improvement, service intensity and rate of functional improvement such that service intensity was strongly related to functional improvement for neurocognitive improvers but not for neurocognitive non-improvers. Medication usage and symptomatology did not confound these findings. **Conclusion** These findings suggest that neurocognitive improvement may be a foundation for functional change and treatment responsiveness during community-based psychosocial rehabilitation for individuals with schizophrenia.

[13] Brekke JS, Hoe M, Long J, Green MF. How neurocognition and social cognition influence functional change during community-based psychosocial rehabilitation for individuals with schizophrenia. *Schizophrenia Bulletin*. 2007 Sep;33(5):1247-56.

The purpose of this study was to assess how neurocognition and social cognition were associated with initial functional level and with rates of functional change in intensive community-based psychosocial rehabilitation interventions that have been shown to yield significant functional change for individuals diagnosed with schizophrenia. We also examined how service intensity was associated with rates of change and whether it served as a moderator of the relationship between functional change and both neurocognition and social cognition. The sample consisted of 125 individuals diagnosed with schizophrenia or schizoaffective disorder who were recruited upon admission to 1 of 4 community-based psychosocial rehabilitation facilities and were followed prospectively for 12 months. One hundred and two subjects completed the 12-month protocol. The findings suggested that (i) the initial level of psychosocial functioning was related to both social cognition and neurocognition at baseline, (ii) when significant rehabilitative change occurs, higher neurocognition and social cognition scores at baseline predicted higher rates of functional change over the subsequent 12 months, (iii) greater service intensity was related to higher rates of improvement in functional outcome over time, and (iv) service intensity moderated the relationship between neurocognition and initial functional level and moderated the relationship between social cognition and the rates of functional change at a trend level. These findings have relevance to our understanding of the heterogeneity in functional rehabilitative outcomes, to our understanding of the conditions of rehabilitative change and for the design of psychosocial interventions in the community.

[14] Brekke JS, Long JD. Community-based psychosocial rehabilitation and prospective change in functional, clinical, and subjective experience variables in schizophrenia. *Schizophrenia Bulletin*. 2000;26(3):667-80.

In a previous study, we found that the intensity, specificity, and longitudinality of community-based psychosocial rehabilitation services were related to superior functional outcomes for individuals diagnosed with schizophrenia. The purpose of this study was to assess the degree to which the intensity and longitudinality of services were related to improvements in subjective experience and clinical outcomes, and to examine the relationships among prospective changes in functional, clinical, and subjective experience variables. One hundred seventy-two individuals diagnosed with a schizophrenia spectrum disorder were followed for 36 months in three distinct models of community-based care. Functional, clinical, and subjective experience outcome data were gathered every 6 months over a 3-year period. Data were analyzed using hierarchical linear modeling (HLM) and P-technique factor analysis. The results indicated that (1) greater service intensity and the longitudinality of services were associated with improvement in client self-esteem; (2) there was evidence for three distinct factors of prospective rehabilitative change that corresponded to the conceptual domains of clinical, functional, and subjective experience outcomes; and (3) there was no differential program impact on symptom levels or the intrapsychic deficits. In addition, the three-factor model of outcome consisting of functional change, clinical change, and subjective experience change was similar to Strauss and Carpenter's "open-linked" system of outcome in schizophrenia. The implications of these findings for research and practice in the area of community-based rehabilitation for individuals with schizophrenia are discussed.

[15] **Buizza C, Schulze B, Bertocchi E, Rossi G, Ghilardi A, Pioli R. The stigma of schizophrenia from patients' and relatives' view: a pilot study in an Italian rehabilitation residential care unit. *Clinical Practice and Epidemiology in Mental Health*. 2007;3:23.**

OBJECTIVE: To identify the constituent elements of the stigma from the perspective of those having first-hand experiences of it. METHODS: Subjective experiences of stigma were explored in six focus groups: three with people suffering from schizophrenia and three with patients' relatives. Focus group sessions were tape-recorded, transcribed and analyzed by means of an inductive method, forming categories from the texts, as a basis for coding. Analysis aimed at establishing a typology of stigmatization experiences from the spoken words of the focus group participants. RESULTS: Four dimensions of stigma were identified: access to social roles; internalization of stigma; quality of mental health services, public image of mental illness. CONCLUSION: The most frequently found topics concerned experiences of marginalization and discrimination that people with schizophrenia experience in their daily life. These results mirror the findings of similar studies obtained in other cultural contexts.

[16] **Carless D, Douglas K. The role of sport and exercise in recovery from serious mental illness: two case studies. *International Journal of Men's Health*. 2008 Sum;7(2):137-56.**

Despite continuing interest in the physical activity-mental health relationship, few studies have recently been published concerning the effects of exercise for men with serious mental illness. This study helps fill this gap through an interpretive approach that explores how sport and exercise can contribute to recovery from mental illness. Case studies of two men's experiences are presented that illustrate two distinct roles sport and exercise can play. In the first case, sport and exercise are central to the participant's identity and fundamental to his sense of self. For this individual, returning to sport and exercise following remission of psychotic symptoms represents a return to intrinsically meaningful activities. In the second case, sport and exercise are used as a tool or vehicle for desired outcomes that facilitate personally meaningful vocational activities. For this individual, sport and exercise represent a fresh start and a worthwhile use of time.

[17] **Chalamat M, Mihalopoulos C, Carter R, Vos T. Assessing cost-effectiveness in mental health: vocational rehabilitation for schizophrenia and related conditions. *Australian and New Zealand Journal of Psychiatry*. 2005 Aug;39(8):693-700.**

OBJECTIVE: Existing evidence suggests that vocational rehabilitation services, in particular individual placement and support (IPS), are effective in assisting people with schizophrenia and related conditions gain open employment. Despite this, such services are not available to all unemployed people with schizophrenia who wish to work. Existing evidence suggests that while IPS confers no clinical advantages over routine care, it does improve the proportion of people returning to employment. The objective of the current study is to investigate the net benefit of introducing IPS services into current mental health services in Australia. METHOD: The net benefit of IPS is assessed from a health sector perspective using cost-benefit analysis. A two-stage approach is taken to the assessment of benefit. The first stage involves a quantitative analysis of the net benefit, defined as the benefits of IPS (comprising transfer payments averted, income tax accrued and individual income earned) minus the costs. The second stage involves application of 'second-filter' criteria (including equity, strength of evidence, feasibility and acceptability to stakeholders) to results. The robustness of results is tested using the multivariate probabilistic sensitivity analysis. RESULTS: The costs of IPS are 10.3M Australian dollars (95% uncertainty interval 7.4M-13.6M Australian dollars), the benefits are 4.7M (3.1M-6.5M Australian dollars), resulting in a negative net benefit of 5.6M Australian dollars (8.4M-3.4M Australian dollars). CONCLUSIONS: The current analysis suggests that IPS costs are greater than the monetary benefits. However, the evidence-base of the current analysis is weak. Structural conditions surrounding welfare payments in Australia create disincentives to full-time employment for people with disabilities.

[18] **Collins ME, Mowbray CT, Bybee D. Characteristics predicting successful outcomes of participants with severe mental illness in supported education. *Psychiatric Services*. 2000 Jun;51(6):774-80.**

Sought to identify characteristics of participants with severe mental illness in a supported education program that were related to a successful outcome. 147 persons who completed such a program were interviewed 6 or 12 mo later, or at both times, to determine whether they were involved in productive activity (i.e., engaging in either college or vocational education or in paid employment). Variables examined as predictors of productive activity were demographic characteristics; education and work background; social support; self-perceptions related to self-esteem, empowerment, quality of life, and school self-efficacy; and illness-related variables. Analysis identified the strongest predictor as productive activity at baseline. Marital status was the only significant demographic variable in the model; single participants were less likely to be engaged in productive activity. For Ss who reported more frequent contact with their social network, the likelihood of engagement in productive activity was

higher, and for those who reported more encouragement for education from their network, the likelihood was lower. A lower level of adjustment in the financial domain decreased the likelihood of productive activity, and a higher level of problems with housework increased the likelihood.

[19] **Crosse C. A meaningful day: integrating psychosocial rehabilitation into community treatment of schizophrenia. Medical Journal of Australia. 2003 May;178 Suppl:S76-8.**

While many of the overt symptoms of schizophrenia may be controlled by medication, the associated psychiatric disability requires ongoing psychosocial rehabilitation and support in the community. The general practitioner can play a crucial role in this rehabilitative process, through encouraging good physical health in the person with schizophrenia; referring the person to a local day program and other psychiatric disability support services; educating the person about the diagnosis and practical self-help; involving families and referring them to support organisations and group therapy programs; and encouraging use of local community facilities and employment training, where appropriate.

[20] **Cunningham K, Wolbert R, Graziano A, Slocum J. Acceptance and Change: the Dialectic of Recovery. Psychiatric Rehabilitation Journal. 2005 Fall;29(2):146-8.**

While a good deal of research has been conducted on the factors associated with recovery, we still need a clearer understanding of the dialectic between behavior and attitude. This research uses semi-structured interviews with two groups of mental health consumers, one receiving more intensive ACT services and the other receiving less intensive case management services, to ascertain the illness management strategies used by those who have been transferred to less intensive services. Our research suggests that while engaging in community, vocational, and church activities are important, those who are further along the road to recovery have gained an understanding and acceptance of their illness that allow them to use these activities as effective illness management strategies.

[21] **Davis LW, Lysaker PH, Lancaster RS, Bryson GJ, Bell MD. The Indianapolis Vocational Intervention Program: a cognitive behavioral approach to addressing rehabilitation issues in schizophrenia. Journal of Rehabilitation, Research and Development. 2005 Jan-Feb;42(1):35-45.**

Despite wishing to return to productive activity, many individuals with schizophrenia enter rehabilitation with severe doubts about their abilities. Negative beliefs in schizophrenia have been linked with poorer employment outcome. Accordingly, in this paper, we describe efforts to synthesize vocational and cognitive behavior therapy interventions into a 6-month manualized program to assist persons with schizophrenia spectrum disorders overcome negative beliefs and meet vocational goals. This program, the Indianapolis Vocational Intervention Program (IVIP), includes weekly group and individual interventions and is intended as an adjunct to work therapy programs. The IVIP was initially developed over a year of working with 20 participants with Structured Clinical Interview for the Diagnostic and Statistical Manual-I (SCID-I) confirmed diagnoses of schizophrenia or schizoaffective disorder who were actively engaged in 20 hours per week of work activity. For this paper, we explain the development of the treatment manual and the group and individual interventions and present case examples that illustrate how persons with severe mental illness might utilize the manualized intervention.

[22] **Dayton GW. The paradox of multiple missions: an evaluability assessment of an affirmative business program that employs persons with serious mental illness. Dissertation Abstracts International: Section B: The Sciences and Engineering. 2004;65(6-B):3151.**

Competitive employment among persons with histories of severe mental illness is exceptionally low (Anthony & Blanch, 1987). Mental disorders are ranked as the fifth most frequent cause of work limitation among chronic health conditions (Stoddard et al. 1998), and only persons with severe mobility impairments, persons who are blind, and persons with mental retardation are, on average, less likely to be employed than persons with severe mental disorders (Kaye & Longmore, 1997; Stoddard et al., 1998). Despite these poor statistics, vocational programs aimed at placing persons with severe mental illness in competitive employment, such as supported employment, show robust employment outcomes (Bond, Drake, Mueser, & Becker, 1997). An agency-sponsored affirmative business designed to competitively employ persons with severe mental illness and other barriers to employment was studied through a program evaluability assessment model. The literature on affirmative businesses, supported employment, and evaluability assessment were reviewed. Based on questions raised and developed by the intended users of the evaluability study, 47 stakeholders across 5 stakeholder groups were interviewed. Data gathered from these interviews were combined with reviews of program and corporate documentation and field observations, and a logic model was developed linking program resources, activities, persons served, and outcomes. A context assessment (Davis & Salasin, 1978) of the affirmative business was made. The affirmative business was compared with key principles of supported employment as an empirically supported benchmark for vocational treatment of persons with severe mental illness and poor

employment histories. Results showed (a) that an affirmative business operating within the context of a nonprofit mental health services provider is highly complex, and (b) that the culture of the affirmative business may have a positive impact on persons served. Recommendations were made regarding the program, policy, and procedural development of the affirmative business, including outcome-based evaluation and business planning as means to guide the future of the affirmative business. Estimating the affirmative business's Social Return on Investment (Gair, 2002) was suggested as a way to demonstrate the unique value of this type of entity to mental health policy makers, along with the recommendation to replicate this apparently successful model of competitive employment.

[23] Eklund M, Hansson L, Ahlqvist C. The importance of work as compared to other forms of daily occupations for wellbeing and functioning among persons with long-term mental illness. *Community Mental Health Journal*. 2004 Oct;40(5):465-77.

This study investigated the importance of competitive work as compared to participating in community-based activities and having no regular daily activity for people with long-term mental illness. One hundred and three persons visiting an outpatient unit and representing the three targeted occupational conditions were randomized to the study and assessed on satisfaction with daily occupations, health, and wellbeing. Persons with work were more satisfied with their daily occupations and were interviewer-rated as better functioning than the other groups, but the groups did not differ on self-ratings of health and wellbeing. Unexpectedly, people participating in community-based activities did not show better satisfaction or functioning than those without regular daily activity. It was concluded that competitive work should be an urgent end goal for services designed for occupational or vocational support. (PsycINFO Database Record (c) 2008 APA, all rights reserved)(from the journal abstract)

[24] Evans JD, Bond GR, Meyer PS, Kim HW, Lysaker PH, Gibson PJ, et al. Cognitive and clinical predictors of success in vocational rehabilitation in schizophrenia. *Schizophrenia Research*. 2004 Oct 1;70(2-3):331-42.

Cognitive impairments in schizophrenia appear to be associated with social problem solving, social and vocational functioning, and psychosocial skill acquisition. The present study examined the relationship of cognitive functioning, as well as clinical symptoms, to vocational outcomes among individuals with schizophrenia. One hundred and twelve participants with DSM-IV schizophrenia spectrum diagnoses underwent a comprehensive neuropsychiatric evaluation after enrolling in one of several employment programs. The neuropsychological evaluation examined verbal learning and memory, attention, speed of information processing, and executive functioning. Clinical symptoms were evaluated with the Positive and Negative Syndrome Scale (PANSS). Vocational outcomes were assessed 4 months after baseline assessment and included both measures of employment outcome (e.g., earnings) and of work performance as assessed by the Work Behavior Inventory (WBI). Negative symptoms, learning and memory performance, processing speed, and executive functioning were related to hours, weeks, and wages earned on the job. Stepwise multiple regression analyses found that among baseline clinical and cognitive predictors, only verbal learning and memory and cognitive disorganization symptoms were significant predictors of work behaviors 4 months later. Learning and memory were the only significant predictors of integrated employment at 4 months. These results suggest specific aspects of cognition may be modestly predictive of vocational outcomes.

[25] Fagiolini A, Goracci A. The long term--maximising potential for rehabilitation in patients with schizophrenia. *European Neuropsychopharmacology*. 2007 Mar;17 Suppl 2:S123-9.

Patients with schizophrenia show low employment rates and low Quality of Life (QoL), and rehabilitation aims to maximise daily functioning, improve social interactions, and develop employment prospects. Evaluation of long-term treatment effectiveness should address these issues. Choice of medication can influence patient compliance and adverse experience of side effects may act as a barrier to rehabilitation. The Schizophrenia Trial of Aripiprazole (STAR), in which patients were randomised to receive 26 weeks of the atypical antipsychotic, aripiprazole (n=284) or standard of care medication (n=271) showed that aripiprazole demonstrated significantly better effectiveness in terms of Investigator Assessment Questionnaire (IAQ) total score. Like other atypical antipsychotic agents, aripiprazole shows a low rate of extrapyramidal adverse events. In addition, unlike the majority of other agents, aripiprazole treatment has a low risk of weight gain, translating into health-related QoL benefits. In summary, newer, atypical agents may improve efficacy, patient satisfaction, and aid long-term rehabilitation.

[26] Fiszdon JM, McClough JF, Silverstein SM, Bell MD, Jaramillo JR, Smith TE. Learning potential as a predictor of readiness for psychosocial rehabilitation in schizophrenia. *Psychiatry Research*. 2006 Aug;143(2-3):159-66.

It has been suggested that learning potential (LP), a patient's ability to benefit from training and practice, may mediate the relationship between cognition and functional outcome. Aims of this study were to (1) assess whether performance on a verbal memory-based measure of LP is associated with readiness for psychosocial rehabilitation; and (2) assess whether explicit

cognitive training in memory strategies improves task performance beyond any implicit learning of organizational strategies that occurs with repeated exposure to to-be-learned material. Fifty outpatients with schizophrenia or schizoaffective disorder were administered three different versions of a list-learning test, the California Verbal Learning Test (CVLT-II). Some patients also received explicit training in semantic memory strategies before administration of the second word list. Based on performance across the three assessments, participants were categorized as "learners", "high scorers", and "non-learners". Participants were also administered the Micromodule Learning Test (MMLT), a measure that predicts performance in manualized skill training groups. LP categorization was associated with performance on the MMLT. High scorers performed better than the other two groups, and as found in earlier studies, education level was associated with performance for the learners. Explicit semantic clustering training was associated with increases in the use of the trained strategy.

[27] Flinn S, Ventura D, Bonder D. Return to work experiences for veterans with severe mental illness living in rural group home facilities. *Work*. 2005;24(1):63-70.

Objective: Independent living services were provided to fourteen veterans with severe mental illness who live together in a rural group home setting. The return to work efforts for three veterans who identified this as a personal goal are described. Method: Data were collected using The Satisfaction with Life Scale, The Independent Living Continuum, The Minnesota Followup Scale, The Recovery Assessment Scale, The Readiness to Change Scale, The Flinn Performance Screening Tool, observation, and informant interviews. Descriptive methods were used to compare and contrast residents who were working vs. those who were not. Results: Two of the three individuals who were working remained employed after eighteen months. The three consumers who ultimately returned to work expressed an initial desire to be employed and were more likely to participate in performance-based activities than other residents of the group home. The skills and barriers to employment were different for each person due to different interests, skills, and motivations. Likewise, their experiences of finding and attempting to maintain employment differed, both because of their personal attributes and because of situational factors. This suggests the need for individualized vocational rehabilitation programs. Conclusion: In spite of the limitations of the study, including a small and homogenous sample, the findings can assist caregivers, mental health professionals, and consumers with severe mental illness in recognizing those individuals who are work-ready and who live in this type of supportive environment.

[28] Glynn SM. The challenge of psychiatric rehabilitation in schizophrenia. *Current Psychiatry Reports*. 2001 Oct;3(5):401-6.

Many persons with schizophrenia continue to struggle with psychiatric symptoms and poor social adjustment, even when prescribed appropriate doses of antipsychotic medications. Psychiatric rehabilitation involves using psychosocial interventions to minimize symptoms and relapse while maximizing social functioning in schizophrenia. In this article, the scope of psychiatric rehabilitation is first defined and then the rationale for psychiatric rehabilitation is presented. The challenges to implementation of psychiatric rehabilitation strategies are next articulated. Finally, brief reviews of the four most empirically validated psychiatric rehabilitation techniques are presented.

[29] Hasanah CI, Razali MS. Quality of life: an assessment of the state of psychosocial rehabilitation of patients with schizophrenia in the community. *Journal of the Royal Society of Health*. 2002 Dec;122(4):251-5.

The subjective quality of life (QOL) of diabetic patients on oral hypoglycaemics was compared to schizophrenic patients who were well controlled with their antipsychotic medications. This comparison was made using the generic quality of life questionnaire produced by the World Health Organization QOL (WHOQOL) group, namely the WHOQOL-100. Statistical analysis showed that there was no significant difference in the psychological well-being and level of independence between the two groups. However, such measures revealed that the most impaired aspect of well-being in the schizophrenic group was the social relationship. Subjective QOL assessment is able to reveal deficits or handicaps that are obscure and probably difficult to appreciate on objective social and clinical evaluation. Such findings are valuable in planning the rehabilitative need of schizophrenic patients in the community.

[30] Hoffmann H, Kupper Z, Kunz B. Hopelessness and its impact on rehabilitation outcome in schizophrenia -an exploratory study. *Schizophrenia Research*. 2000 Jun 16;43(2-3):147-58.

The primary focus in contemporary psychiatry on symptoms and their neurobiological basis, although fundamentally important, is nevertheless incomplete. The long-term course and outcome of schizophrenia are determined not only by the disorder, but also by the interaction between the person and the disorder. Not only psychopathological symptoms but also cognitive variables such as negative self-concepts, low expectations and external loci of control can influence the patient's coping strategies and may lead to hopelessness and chronicity. Hopelessness here refers to a cognitive-affective state in which the patient perceives the disorder and its consequences to be beyond his control, feels helpless and has given up expecting to

influence its course positively, thereby abandoning responsibility and active coping strategies. In a prospective study, we examined these relationships by using logistic regression in data from 46 schizophrenic outpatients who were participating in a vocational rehabilitation program. Negative self-concepts, external loci of control, and depression correlated to a higher extent with depressive-resigned coping strategies than did schizophrenic symptoms. Thus, poor rehabilitation outcome may be predicted to a high degree by the presence of external loci of control, pessimistic outcome expectancies, negative symptoms, and depressive-resigned coping strategies. After having eliminated the influence of negative symptoms, external control beliefs still had significant predictive value for the outcome. Rehabilitation outcome in schizophrenic patients can be only partially predicted by negative symptoms; the other predictive factor is whether the patient has already given up or not.

[31] **Hoffmann H, Kupper Z, Zbinden M, Hirsbrunner HP. Predicting vocational functioning and outcome in schizophrenia outpatients attending a vocational rehabilitation program. *Social Psychiatry and Psychiatric Epidemiology*. 2003 Feb;38(2):76-82.**

BACKGROUND: Vocational rehabilitation is a central issue in the rehabilitation of patients with chronic schizophrenia. However, even with the help of comprehensive integration programs, achieving this objective remains a very ambitious and difficult undertaking. Therefore, a profound and up-to-date knowledge of vocational functioning and outcome predictors in patients who have the goal to return into competitive employment is imperative. The objective of the present study was to test the predictors summarized in the recent review of Cook and Razzano, as well as to test those predictors specified in the nine hypotheses put forward by Anthony and Jansen in schizophrenia patients enrolled in a vocational rehabilitation program. **METHODS:** The predictive value of ten hypotheses centering on vocational functioning and outcome were consecutively tested in a sample of 53 schizophrenia patients. Those predictors identified as significant were then taken into a 'winner take all' regression in order to determine which of them were the best. **RESULTS:** The overall work performance observed in a workshop proved to be the best predictor of vocational functioning. Contrary to the pivotal claim in Anthony and Jansen's review, in our sample, negative symptoms indeed influenced vocational functioning, outcome and functional skills. Cognitive impairments, social competence and fatalistic control beliefs also had predictive value for vocational functioning and outcome. **CONCLUSIONS:** These results reflect the accumulated findings of the past decade as summarized by Cook and Razzano. Moreover, they serve to substantiate the necessity of promoting the concept of cognitive remediation and associated programs designed to transform fatalistic beliefs into feelings of hopefulness, thereby enhancing the readiness of schizophrenia patients to enroll in rehabilitation programs.

[32] **Holthausen EAE, Wiersma D, Cahn W, Kahn RS, Dingemans PM, Schene AH, van den Bosch RJ. Predictive value of cognition for different domains of outcome in recent-onset schizophrenia. *Psychiatry Research*. 2007 Jan;149(1-3):71-80.**

The aim of this study was to see whether and how cognition predicts outcome in recent-onset schizophrenia in a large range of domains such as course of illness, self-care, interpersonal functioning, vocational functioning and need for care. At inclusion, 115 recent-onset patients were tested on a cognitive battery and 103 patients participated in the follow-up 2 years after inclusion. Differences in outcome between cognitively normal and cognitively impaired patients were also analysed. Cognitive measures at inclusion did not predict number of relapses, activities of daily living and interpersonal functioning. Time in psychosis or in full remission, as well as need for care, were partly predicted by specific cognitive measures. Although statistically significant, the predictive value of cognition with regard to clinical outcome was limited. There was a significant difference between patients with and without cognitive deficits in competitive employment status and vocational functioning. The predictive value of cognition for different social outcome domains varies. It seems that cognition most strongly predicts work performance, where having a cognitive deficit, regardless of the nature of the deficit, acts as a rate-limiting factor.

[33] **Holzner B, Kemmler G, Meise U. The impact of work-related rehabilitation on the quality of life of patients with schizophrenia. *Social Psychiatry and Psychiatric Epidemiology*. 1998 Dec;33(12):624-31.**

In a cross-sectional study of 60 outpatients with schizophrenia (mean age 36.3 +/- 11.1) the effect of a work-related rehabilitation programme on the patients quality of life was investigated. A group of patients with the same diagnosis, but without rehabilitation, served as controls. Patients of the rehabilitation group had been attending the programme for a mean duration of 15.0 months. The programme focuses on occupational and everyday skills and also involves social aspects. The patients' quality of life was assessed using two self-administered questionnaires: the Munich List of Life Dimensions (MLDL, Heinisch et al. 1991) and the Everyday Life Questionnaire (Bullinger et al. 1993). Life satisfaction as well as functional quality of life were higher in the rehabilitation group in the majority of domains assessed. Difference between groups was highest for satisfaction with work, followed by leisure-time activities, independence and friendships/acquaintances. Results indicate that the rehabilitation programme acts like a "lever" which, applied to one point (work, day structuring), subsequently affects most

domains of daily living.

[34] **Katz LJ. Interagency collaboration in the rehabilitation of persons with psychiatric disabilities. Journal of Vocational Rehabilitation. 1991 Jul;1(3) Special issue: Psychiatric impairment:45-57.**

Impetus for the promotion of interagency collaboration between the vocational rehabilitation system and the mental health system came about after the signing of the joint National Institute for Mental Health/Rehabilitation Services Administration Interagency Agreement in 1978, drawing particular attention to the needs of persons with long-term mental illness. As a result of this federal agreement, joint demonstration projects and cross-agency training grants were funded in order to facilitate collaborative activities between the MH system and the VR system on state and local levels. The efforts of one such federally funded interagency training program conducted by faculty and staff from the University of Pittsburgh throughout the six states of RSA Region III are detailed. Recommendations are made with respect to facilitating interagency collaborative efforts based on these training experiences.

[35] **Kayser N, Sarfati Y, Besche C, Hardy-Bayle MC. Elaboration of a rehabilitation method based on a pathogenetic hypothesis of "theory of mind" impairment in schizophrenia. Neuropsychological Rehabilitation. 2006 Feb;16(1):83-95.**

"Theory of mind" skills have repeatedly been shown to be impaired in schizophrenic patients. The purpose of this paper is to develop a therapeutic intervention targeting schizophrenic patients' abilities to attribute mental states to others. This preliminary study tried to test the hypothesis that this kind of intervention should improve patients' communication abilities; we also wondered if this would have a positive impact on their more general psychopathology. Eight chronic schizophrenic patients were asked to analyse video scenes (showing interactions between two or more persons), with particular attention being paid to the characters' mental states. Their clinical assessments (general clinical symptoms, communication, and the ability to attribute intentions to others, rated before and after two training sessions, over a one-week period) were compared with those of a control group of six chronic schizophrenic patients. The results support our hypothesis of a possible improvement of patients' communication disorders and an improvement of their abilities to attribute intentions to others. The more general psychopathology ratings, however, remained unchanged. Although these results need further development and confirmation, they suggest a possible promising approach for psychosocial rehabilitation therapies based on "theory of mind" skills.

[36] **Kopelowicz A, Liberman RP. Biobehavioral treatment and rehabilitation of schizophrenia. Harvard Review of Psychiatry. 1995 Jul-Aug;3(2):55-64.**

The psychopathology and associated disabilities experienced by persons with schizophrenia have only partially responded to conventional pharmacological and psychosocial treatment approaches. Biobehavioral treatment and rehabilitation employs behavioral assessment, social learning principles, skills training, and a focus on the recovery process to amplify the effects of pharmacotherapy. Utilizing the Medline database, we review a selection of English-language studies published from 1970 to 1994 that support the effectiveness of each of the components of biobehavioral therapy, such as case management, psychopharmacology with behavioral assessment, psychoeducation, family involvement, and social skills training. An integrated biobehavioral therapy directed toward early detection and treatment of schizophrenic symptoms, collaboration between consumers and caregivers in managing treatment, family and social skills training, and teaching coping skills and self-help techniques has been documented to improve the course and outcome of schizophrenia, as measured by symptom recurrence, social functioning, and quality of life. A case vignette is presented to illustrate the successful integration of biobehavioral therapies into a treatment system that focuses on consumers' attempts to become increasingly responsible for recovering from illness.

[37] **Kupper Z, Hoffmann H. Course patterns of psychosocial functioning in schizophrenia patients attending a vocational rehabilitation program. Schizophrenia Bulletin. 2000;26(3):681-98.**

Although considerable research has been undertaken on psychosocial treatment and rehabilitation of patients with chronic schizophrenia, few studies have examined individual courses by means of repeated and frequent observation. A more dynamic view of rehabilitation might disclose patterns of response useful for both understanding and treating symptoms and disabilities associated with chronic schizophrenia. In an exploratory study, time series of 35 schizophrenia outpatients participating in a vocational rehabilitation program were examined by a relatively original quantitative approach to the identification of dynamical patterns. By using time series regression on weekly behavioral ratings, dynamical properties of mean, trend, and variability were calculated. Cluster analysis revealed five subgroups of courses: (1) stable at a high level, (2) fluctuating at a middle level, (3) at a middle level, tending toward a slight descent, (4) showing a steep descent, and (5) unstable at a low level of functioning. The subgroups varied at intake in psychopathology; in cognitive dysfunction; and in measures of self-concept,

locus of control, and coping. At program end, pronounced differences were found among the subgroups in vocational reintegration. These different dynamical patterns can be understood as typical pathways linking patient characteristics to rehabilitation outcome. A broader use of dynamical designs could substantially clarify the variety of reactions of patients to psychosocial interventions.

[38] **Kurtz MM, Wexler BE, Fujimoto M, Shagan DS, Seltzer JC. Symptoms versus neurocognition as predictors of change in life skills in schizophrenia after outpatient rehabilitation. *Schizophrenia Research*. 2008 Jul;102(1-3):303-11.**

A growing body of literature has shown that neurocognitive deficits in schizophrenia account for 20-60% of the variance in measures of outcome, and in many studies are more closely related to outcome than symptoms [Green, M.F., Kern, R.S., Braff, D.L., Mintz, J., 2000. Neurocognitive deficits and functional outcome in schizophrenia: are we measuring the "right stuff"? *Schizophr. Bull.* 26(1), 119-136; Green, M.F., Kern, R.S., Heaton, R.K., 2004. Longitudinal studies of cognition and functional outcome in schizophrenia: implications for MATRICS. *Schizophr. Res.* 72(1), 41-51]. Most of these studies have been cross-sectional, few longitudinal studies have investigated the degree to which neurocognition and symptoms predict ability to benefit from outpatient rehabilitation, and no longitudinal studies use measures of everyday life skills that are performance-based. In the current study we investigated the relationship between five measures of neurocognitive function, crystallized verbal ability, visual sustained vigilance, verbal learning, problem-solving, and processing speed, and two measures of symptoms, total positive and negative symptoms, and change on a performance-based measure of everyday life skills after a year of outpatient rehabilitation. Rehabilitation consisted of both psychosocial and cognitive interventions. Forty-six patients with schizophrenia or schizoaffective disorder were studied. Results of a linear regression model revealed that verbal learning predicted a significant amount of the variance in change in performance-based measures of everyday life skills after outpatient rehabilitation, even when variance for all other variables in the model was accounted for. Measures of crystallized verbal ability, sustained visual vigilance, problem-solving, processing speed and symptoms were not linked to functional status change. These findings emphasize the importance of verbal learning for benefiting from psychosocial and cognitive rehabilitation interventions, and suggest the development of alternative rehabilitation strategies for those who do not benefit.

[39] **Lehman AF. Vocational rehabilitation in schizophrenia. *Schizophrenia Bulletin*. 1995;21(4):645-56.**

Schizophrenia exacts a heavy toll on a person's capacity to work, and a variety of vocational rehabilitation interventions have been developed over the past few decades to enhance the vocational capacities of persons with this disorder. The research literature on outcomes of vocational rehabilitation during the era of deinstitutionalization for persons with schizophrenia is reviewed. Most vocational rehabilitation programs have a positive influence on work-related activities, but most have failed to show substantial and enduring impacts on independent, competitive employment. Recent advances in supported employment suggest that vocational rehabilitation offers greater promise than do transitional and sheltered employment approaches. Vocational rehabilitation intervention may also exert positive influences on such clinical outcomes as medication compliance, symptom reduction, and relapse.

[40] **Lucca AM, Allen GJ. A statewide assessment of psychosocial rehabilitation programs: general characteristics and services. *Psychiatric Rehabilitation Journal*. 2001 Win;4(3):205-13.**

Psychosocial rehabilitation (PSR) encompasses a diverse array of skill-building and environmental support services for individuals with serious mental illness. The current study gleaned information from state Department of Mental Health databases and interviews with program directors to describe general characteristics and services of 22 out of 24 PSR programs in one New England state. Results underscored the relative predominance of services targeting social rehabilitation rather than vocational, educational or residential rehabilitation. In addition, density of service provision across agencies was unrelated to enrollment or daily attendance statistics. Furthermore, low validity coefficients between mandated reporting statistics and information collected via interviews were found, suggesting the need to develop more valid and reliable reporting systems. Finally, 4 areas of concern were highlighted: substantial discrepancies between average membership enrollment and daily attendance, low percentages of peer-managed activities, predominance of services in traditional clinical settings, and lack of attention to multicultural issues.

[41] **Lysaker P, Bell M. Work rehabilitation and improvements in insight in schizophrenia. *Journal of Nervous and Mental Disease*. 1995 Feb;183(2):103-6.**

Research has suggested that impaired insight in patients with schizophrenia is associated with poorer treatment compliance and outcome. Little is known about what forms of treatment can lead to improvements in insight. Research has found that impairments in insight remain stable despite participation in standard treatments. This study examined changes in insight in a sample of 44 subjects with impaired insight who were enrolled in a vocational rehabilitation program. Significant

improvements in insight rating were observed for the sample, with a total of 61% of subjects ($N = 27$) improving. Multiple regression analysis revealed that measures of cognitive impairment (Digit Symbol Subtest Test, Slosson IQ Test, Wisconsin Card Sorting Test) predicted improvement in insight ($R^2 = .33$), with greater levels of cognitive impairments predicting lesser improvement. Psychosocial variables, including concurrent measurements of positive and negative symptoms, were not significant predictors of improvement. These results suggest that vocational rehabilitation can favorably affect insight, particularly for subjects with less severe cognitive deficits.

[42] **Lysaker PH, Bond G, Davis LW, Bryson GJ, Bell MD. Enhanced cognitive-behavioral therapy for vocational rehabilitation in schizophrenia: effects on hope and work. *Journal of Rehabilitation Research and Development*. 2005 Sep-Oct;42(5):673-82.**

To address the effects of dysfunctional cognitions on vocational outcome of people with schizophrenia spectrum disorders, we developed the Indianapolis Vocational Intervention Program (IVIP), a cognitive-behavioral program of group and individual interventions. Fifty participants with schizophrenia or schizoaffective disorder were offered 6-month work placements and randomized to receive IVIP ($n = 25$) or standard support services ($n = 25$). Hours worked were measured weekly, and work performance was assessed biweekly with the use of the Work Behavior Inventory. Hope and self-esteem were assessed at baseline and at 5 months with the Beck Hopelessness Scale and the Rosenberg Self-Esteem Schedule. Analysis of variance (ANOVA) revealed that the IVIP group worked significantly more weeks and had better average work performance than the standard support group. Repeated measures ANOVA of baseline and follow-up scores indicated that the IVIP group sustained baseline levels of hope and self-esteem through follow-up, while the standard support group experienced declines. Results provide initial evidence of the effectiveness of the IVIP.

[43] **Malkmus, DD. Community reentry: cognitive-communicative intervention within a social skill context. *Topics in Language Disorders*. 1989 Mar;9(2):50-66.**

Argues that the long-term effects of head injury may be seen as a compromise of the interpersonal and instrumental skills required to solve everyday problems. Cognitive-communicative interventions for head injury patients are discussed in this context. Rehabilitation efforts have focused on developing compensatory strategies and self-monitoring skills and on the use of language in social contexts. The systematic integration of these components within a social skill context and training framework is needed. A rehabilitation framework combining ecological-systems and social-skill approaches is recommended to provide interventions directed toward the reacquisition of effective real-world functioning. (PsycINFO Database Record (c) 2008 APA, all rights reserved)

[44] **McGrew JH, Griss ME, Born DL, Katuin CH. Performance-based funding of supported employment for persons with severe mental illness: vocational rehabilitation and employment staff perspectives. *The Journal of Behavioral Health Services & Research*. 2007 Jan;34(1): 1-16.**

Vocational rehabilitation (VR) supervisors and counselors ($n = 35$) as well as supported employment (SE) program managers and employment specialists ($n = 26$) were enrolled in a 12-month evaluation comparing two models of funding services for persons with severe mental illness: fee-for-service and results-based funding (RBF). Quantitative measures of job satisfaction and preference for funding method were obtained prospectively on a quarterly basis, and SE staff activity logs were collected monthly. Qualitative data were collected using a series of focus groups conducted at the conclusion of the study. Despite recording a substantial increase in semi-annualized VR billing charges when using RBF (45-49%), SE staff expressed less satisfaction with RBF over time. Staff raised concerns about increased financial risks and pressures to achieve job placements under RBF. Vocational rehabilitation staff were consistently more satisfied with RBF, expressing particular satisfaction with perceived effectiveness and the payment authorization process. Both VR and SE staff expressed some reservations about RBF, primarily concerning possible pressures for adverse client selection.

[45] **McGurk SR, Mueser KT, Harvey PD, LaPuglia R, Marder J. Cognitive and symptom predictors of work outcomes for clients with schizophrenia in supported employment. *Psychiatric Services*. 2003 Aug;54(8):1129-35.**

OBJECTIVES: This study examined the relationships of measures of cognitive functioning and psychiatric symptoms with work outcomes and use of vocational services for clients with schizophrenia in a supported employment program. **METHODS:** Thirty clients who were newly enrolled in a supported employment program were evaluated with cognitive and symptom measures at program entry and two years later. The clients' amounts of competitive work, wages earned, on-job support, and contact with employment specialists during the two-year follow-up period were documented. **RESULTS:** Predictors of clients' work outcomes included previous work history, amount of government entitlement income received, severity of negative symptoms, involvement in sheltered work activity at baseline, and level of cognitive functioning, including scores on measures

of executive functioning and verbal learning and memory. The amounts of on-job support and contact with employment specialists were predicted by the cognitive domains of executive functioning, verbal learning, attention, and psychomotor speed as well as by the severity of psychotic symptoms. **CONCLUSIONS:** Clients with schizophrenia who have higher levels of cognitive impairment may require greater amounts of vocational support than those with lower impairment. A variety of rehabilitation strategies may be required to improve vocational outcomes and reduce the amount of supported employment services needed by clients with schizophrenia.

[46] **Mowbray CT, Collins M, Bybee D. Supported education for individuals with psychiatric disabilities: long-term outcomes from an experimental study. Social Work Research. Jun 1999;23(2):89-100.**

Research indicates that many individuals with psychiatric disabilities often experience the onset of mental illness in young adulthood. This fact, as well as educational discrimination, unmet needs for support, personal fears of failure, and the cyclical nature of their illness causes many of these individuals not to pursue higher education, despite their intellectual qualifications. Supported education programs have arisen as psychosocial rehabilitation interventions in response to these circumstances. The Michigan Supported Education Research project was unique in using open enrollment for 397 eligible participants (17-75 yrs old) from a large urban area and testing the intervention with a true experimental design. The analysis of 12 mo outcomes for these Ss showed positive results: 39-46% were engaged in some productive activity (job or school), and 21-28% were enrolled in college or vocational training. The article discusses the appropriateness of supported education as a social work intervention.

[47] **Nuechterlein KH, Subotnik KL, Turner LR, Ventura J, Becker DR, Drake RE. Individual placement and support for individuals with recent-onset schizophrenia: integrating supported education and supported employment. Psychiatric Rehabilitation Journal. 2008 Spr;31(4) Special issue: Special 10th anniversary issue on supported employment:340-9.**

Objective: To describe the adaptation of the Individual Placement and Support model of supported employment to individuals with a recent first episode of schizophrenia or a related psychotic disorder. Methods and Results: Given that the vocational goals of persons with a recent onset of schizophrenia often involve completion of schooling rather than only competitive employment, the principles of Individual Placement and Support were extended to include supported education. This extension involved initial evaluation of the most appropriate goal for individual participants, having the IPS specialist working on placement either with the participant or directly with educational and employment settings (depending on permitted disclosure and individual need), and follow-along support that included work with teachers and aid in study skills and course planning as well as typical supported employment activities. Work with family members also characterized this application of IPS. A randomized controlled trial is comparing the combination of IPS and skills training with the Workplace Fundamentals Module with the combination of brokered vocational rehabilitation and broad-based social skills training. Participants in the IPS condition have returned to school, competitive work, and combined school and work with approximately equal frequency. Conclusions: IPS principles can be successfully extended to integrate supported education and supported employment within one treatment program. The distribution of return to school, work, or their combination in this group of individuals with recent-onset schizophrenia supports the view that an integrated program of supported education and supported employment fits this initial period of illness.

[48] **Peer JE, Kupper Z, Long JD, Brekke JS, Spaulding WD. Identifying mechanisms of treatment effects and recovery in rehabilitation of schizophrenia: longitudinal analytic methods. Clinical Psychology Review. 2007 Jul;27(6):696-714.**

The longitudinal dimension of schizophrenia and related severe mental illness is a key component of theoretical models of recovery. However, empirical longitudinal investigations have been underrepresented in the psychopathology of schizophrenia. Similarly, traditional approaches to longitudinal analysis of psychopathological data have had serious limitations. The utilization of modern longitudinal methods is necessary to capture the complexity of biopsychosocial models of treatment and recovery in schizophrenia. The present paper summarizes empirical data from traditional longitudinal research investigating recovery in symptoms, neurocognition, and social functioning. Studies conducted under treatment as usual conditions are compared to psychosocial intervention studies and potential treatment mechanisms of psychosocial interventions are discussed. Investigations of rehabilitation for schizophrenia using the longitudinal analytic strategies of growth curve and time series analysis are demonstrated. The respective advantages and disadvantages of these modern methods are highlighted. Their potential use for future research of treatment effects and recovery in schizophrenia is also discussed.

[49] **Penades R, Boget T, Catalan R, Bernardo M, Gasto C, Salamero M. Cognitive mechanisms, psychosocial functioning, and neurocognitive rehabilitation in schizophrenia. Schizophrenia Research. 2003 Oct;63(3):219-27.**

The aim of the present study is to test Brenner's model of cognitive functioning in schizophrenia. It is assumed that elementary

cognitive disorders (attention and encoding) and complex cognitive disorders (recall, concept formation) reinforce each other. Cognitive disorders are supposed to cause detrimental effects on functional outcome. We used cognitive rehabilitation as a strategy to induce cognitive changes in 27 patients assigned to treatment groups following the cognitive modules of the Integrated Psychological Treatment (IPT). Ten schizophrenic patients without cognitive impairments worked as a control group. With only one minor conceptual change (replacing concept formation with executive function, a more comprehensive construct), we found that our data fitted with Brenner's model. A relationship has been found between neuropsychological improvements and higher levels of autonomy and social functioning. These findings have important implications not only for cognitive assessment but also for selecting targets in cognitive rehabilitation.

[50] **Prouteau A, Verdoux H, Briand C, Lesage A, Lalonde P, Nicole L, et al. Cognitive predictors of psychosocial functioning outcome in schizophrenia: a follow-up study of subjects participating in a rehabilitation program. *Schizophrenia Research*. 2005 Sep;77(2-3):343-53.**

The aims of this prospective study were to explore in subjects with psychosis participating in a rehabilitation program whether cognitive performances at baseline predicted (i) psychosocial functioning over a 15-16 month follow-up; (ii) improvement in psychosocial functioning over the rehabilitation program. Visuo-spatial tests from the Cambridge Neuropsychological Test Automated Battery (CANTAB) were administered to assess cognitive performance in 55 subjects with schizophrenia spectrum disorders who completed a rehabilitation program. The Multnomah Community Ability Scale (MCAS) was used to measure dimensions of community functioning. One subscale of the Client's Assessment of Strengths, Interests, and Goals (CASIG) provided a measure of subjective quality of life (QoL). Improvement was defined as a 15% or more increase in psychosocial scores between baseline and follow-up. Worse baseline sustained attention predicted better self-rated quality of life, and better baseline visual memory predicted better community functioning over the rehabilitation follow-up period, in particular, higher autonomy in activities of daily living, and less physical and psychiatric symptoms that could interfere with rehabilitation. Baseline cognitive performances predicted community functioning improvement during the follow-up period: visual memory predicted improvement in daily living autonomy and in social competence; sustained attention predicted improvement in behavioral problems (such as medication compliance, collaboration with treatment providers or impulse control) and social competence; planning performances predicted improvement in social competence. These cognitive functions could be specifically targeted in a rehabilitation program aimed at enhancing functioning in those particular dimensions.

[51] **Resnick SG, Rosenheck, RA, Drebing CE. What makes vocational rehabilitation effective? Program characteristics versus employment outcomes nationally in VA. *Psychological Services*. 2006 Nov;3(4):239-48.**

With the focus on well-defined models for rehabilitation of people with mental illness, there is interest in program elements that predict successful outcomes. Data on programmatic elements from 92 Veterans Affairs Compensated Work Therapy (CWT) programs were merged with 6,891 individual records. General estimation equation analyses were used to identify correlates of 3 dependent variables representing successful outcomes. Community-based work at the individual level was positively associated with all 3 measures of success. Program emphasis on assertive outreach was positively associated with competitive employment and achievement of constructive activity. Greater amounts of assertive outreach and less integration of mental health and vocational staff were associated with a greater likelihood of constructive activity. These results suggest that the best outcomes are achieved by community-oriented programs incorporating assertive outreach.

[52] **Ryan WJ Jr. Perceived social support and the effects of living in the community for individuals with a serious and persistent mental illness. *Dissertation Abstracts International Section A: Humanities and Social Sciences*. 2001 May;61(11-A):4551.**

This dissertation examined the relationship between an individual's perception of social support and his/her's day-to-day functioning. Social support assists an individual in maintaining physical and mental health by buffering the individual from stress. Social support can be affective as in emotional support, advice and positive feedback, or instrumental as in material aid and giving physical help. Individuals with a serious and persistent mental illness are vulnerable to stress, but have fewer opportunities for social support due to smaller size of their social support networks. Intensive case management services is an effective service which reduces rehospitalization and is mandated to be available for individuals with a serious and persistent illness, one function of intensive case management is informal support network building that arranges for social support. A conceptual model of social support proposes that perceived social support results in better day-to-day functioning measured by less time in psychiatric hospitals, more time in community residence, higher Global Assessment of Functioning scores, lower Brief Psychiatric Rating Scale scores, and increased participation in vocational and day program activities. This study was based on a convenience sample of 125 consumers of the Community Treatment Teams of Philadelphia who (1) had an identified significant other(s), (2) lived in the community for a year, (3) did not have a primary diagnosis of developmental

disability, and (4) agreed to participate in the study. Consumers were given an explanation of the study and an opportunity to discuss it at their homes and then asked to participate. If they consented they were administered the Perceived Social Support Scale. Psychiatrists were asked to complete a Brief Psychiatric Rating Scale. Intensive Case managers completed a Global Assessment of Functioning. Demographic information was obtained from the records. Intensive case managers were asked about consumers contact with significant others. A regression analysis showed there was no statistically significant relationship between the combination of perceived social support and family contact by intensive case managers and overall level of functioning (GAF), psychiatric symptomatology (BPRS), and days of hospitalization. There was an indication that perceived social support has an effect that approached significance on psychiatric symptomatology.

[53] **Silverstein SM, Hatashita-Wong M, Wilkniss S, Lapasset J. [Interpersonal techniques for optimizing positive outcomes in the inpatient psychiatric rehabilitation of schizophrenia]. *Santé Mentale au Québec*. 2004 Autumn;29(2):45-63.**

There now exist a number of milieu-based and group-based behavioral treatments that have demonstrated effectiveness with so-called "treatment-refractory" schizophrenia patients. These interventions are not likely to achieve their maximal impact, however, unless program staff consistently employ behavioral principles in their moment-to-moment interactions with patients throughout the day. In this paper we describe a number of interpersonal techniques that are effective in dealing with a variety of institutionalized/dependent and provocative/aggressive behaviors. Each technique is explained and detailed examples are given to demonstrate appropriate and inappropriate staff responses to patient behavior. The discussion ends with the description of a successful behavior contract that employed a number of these techniques.

[54] **Sullivan P. Mental health case management and employment outcomes. *Sourcebook of rehabilitation and mental health practice*. Moxley, David P. (Ed); Finch, John R. (Ed); pp. 269-81. New York, NY, US: Kluwer Academic/Plenum Publishers, 2003. xv, 490 pp.**

Résumé: (from the chapter) Is there a role for case management in the vocational habilitation and rehabilitation of consumers? The answer is yes--but with the caveat that case management is no panacea. Case managers cannot de-fragment a system nor provide each and every service that a consumer needs. It appears that there are several important considerations that must be addressed if case management services are to positively impact consumer outcomes in the area of employment. First, as the research indicates the magic of case management still pivots on the power of the relationship. Case managers who can forge positive and supportive relationships with consumers, who are honest, reliable, and compassionate are successful. For many consumers to enter or re-enter the world of work requires them to fight their anxieties and fears, as well as the strong forces of stigma and social rejection. Case managers who are there at every step can be enormously helpful. Second, case management services appear to be most beneficial when offered within the context of, or in conjunction with, specialized vocational services. The existence of a vocational program underscores employment as a valued consumer outcome. Furthermore, the current realities of practice preclude case managers from engaging in the full range of development and recruitment activities that create viable opportunities for consumers. However, case management services can fruitfully augment vocational services, particularly through outreach and support activities. Finally, in the era of managed care and increased demands for services future research must not only determine if and how case management is effective, but also who is likely to benefit from this service and who is not. Case management must not become the 21st-century version of individual therapy where all consumers get it regardless if they need it or want it. Without a doubt vocational opportunity is a pathway to recovery. It is incumbent on mental health programs to develop a wide range of employment services for consumers and demonstrate confidence that consumers can succeed. Advocates must implore policymakers and, more importantly, the general public, to open the door to consumers. Those affected by mental illness, like all people, desperately desire to make a contribution to society and this desire should not be thwarted.

[55] **Tan PHP. Job satisfaction of individuals with serious and persistent mental illness, its correlates, and its effect on intent to continue working. *Dissertation Abstracts International Section A: Humanities and Social Sciences*. 1997 Apr;57(10-A):4545.**

Work is highly valued in American culture. Adults are expected to obtain and successfully maintain employment. Work provides a generative and reintegrative force that enhances the well-being of individuals who are in rehabilitation including those with serious and persistent mental illness (SMI). The field of rehabilitation for individuals with SMI, however, is plagued by poor vocational outcomes. Job satisfaction may be an important factor which helps to explain such poor vocational outcomes. The Minnesota Satisfaction Questionnaire was used to assess the job satisfaction of a sample of individuals with SMI. Ranking of items indicated that respondents were interested in rehabilitation--the opportunity to be productive, to be involved in social activities, and to take part in social processes as opposed to being isolated and feeling useless. Respondents

also ranked highly items that are related to a supportive work environment. Rankings were lowest for items that reflected the sample's involvement in jobs that use the labor of low-skilled or unskilled workers. Findings also revealed that gender, educational attainment, type of work, and age were not significant predictors of overall job satisfaction. Valence of pay was a significant predictor of overall job satisfaction. Social support from family and friends was also found to be a significant predictor of overall job satisfaction, a finding that parallels those of other studies. The finding that mental health reasons for working is a significant predictor of job satisfaction confirmed the claims that persons who possess a more positive attitude toward work were more likely to be satisfied with their jobs. Lastly, the findings of this study support the proposition that overall job satisfaction is a significant predictor of intent to continue working for individuals with SMI. In effect, the results of this study extend the external validity of a component of the Theory of Work Adjustment to the population of individuals with SMI.

[56] **Tsang HW. Applying social skills training in the context of vocational rehabilitation for people with schizophrenia. *Journal of Nervous and Mental Disease*. 2001 Feb;189(2):90-8.**

This paper describes a model for the conceptualization of social skills necessary for the vocational success of people with schizophrenia. Based on this model, a two-part measure was developed and validated to assess social skills necessary for job search and tenure. The measure consists of a 10-item self-administered checklist and a role-play exercise. The self-administered checklist measures clients' perceived competence in handling work-related social situations. The role-play exercise assesses the social skills necessary for job acquisition and maintenance in two simulated situations (participating in a simulated job interview and requesting urgent leave from work). Furthermore, a social skills training module has been designed, which enhances vocational outcome and fills a gap in the existing, commonly used modules. A pilot study shows that the training module together with appropriate professional support afterward is effective in enhancing the social competence and vocational outcomes of persons with schizophrenia. Implications for cross-cultural applications are discussed.

[57] **Twamley EW, Jeste DV, Lehman AF. Vocational rehabilitation in schizophrenia and other psychotic disorders: a literature review and meta-analysis of randomized controlled trials. *Journal of Nervous and Mental Disease* . 2003 Aug;191(8):515-23.**

Although most individuals with schizophrenia are unemployed, plentiful evidence suggests that work rehabilitation is effective for this population. Yet, there have been only 11 published randomized controlled trials of work rehabilitation interventions for people with severe mental illness. We review these 11 studies, 9 of which were trials examining Individual Placement and Support (IPS) or supported employment (SE) interventions. Outcomes strongly favored the experimental groups in terms of the percentage of participants who worked at any point during the studies (weighted mean effect size = 0.66). In the 5 investigations comparing IPS/SE to conventional vocational rehabilitation services, 51% of the participants receiving IPS/SE worked competitively, versus 18% of those in the comparison groups (weighted mean effect size = 0.79). This effect size may be a useful benchmark for future trials. Further investigations should examine individual differences as predictors of response, to identify modifiable versus nonmodifiable factors that yield better outcomes.

[58] **Twamley EW, Padin DS, Bayne KS, Narvaez JM, Williams RE, Jeste DV. Work rehabilitation for middle-aged and older people with schizophrenia: a comparison of three approaches. *Journal of Nervous and Mental Disease* . 2005 Sep;193(9):596-601.**

We examined employment outcomes among middle-aged and older clients with schizophrenia in three work rehabilitation programs that varied in their emphasis on conventional vocational rehabilitation (train-then-place) versus supported employment principles (place-then-train). We analyzed retrospective data from 36 veterans receiving VA Wellness and Vocational Enrichment Clinic (WAVE) services and prospective data from a randomized controlled trial of 30 subjects receiving Department of Rehabilitation/Employment Services (DOR) or Individual Placement and Support (IPS). Across interventions, half the subjects obtained volunteer or paid work. IPS participants, those with schizophrenia (versus schizoaffective disorder), and those with more education were more likely to work or volunteer. Rates of volunteer or paid work were 81% in IPS, 44% in WAVE, and 29% in DOR. Rates of competitive/paid work only were highest in IPS (69%), followed by DOR (29%) and WAVE (17%). Middle-aged and older people with schizophrenia-spectrum disorders benefit most from a supported employment approach.

[59] **Velligan DI, Gonzalez JM. Rehabilitation and recovery in schizophrenia. *Psychiatric Clinics of North America*. 2007 Sep;30(3):535-48.**

The combination of new medications and effective psychosocial rehabilitation interventions has the potential to improve outcomes for individuals with schizophrenia significantly. Patients who have persistent positive symptoms can benefit from

cognitive behavior therapy. Impairments in social competence can be addressed with social skills training. Supported employment programs may increase the ability of patients who have schizophrenia to obtain competitive employment. Family psychoeducational approaches, treatments for comorbid substance abuse, and cognitive rehabilitation approaches that enhance or bypass impairments in cognitive functioning are discussed. This article describes current efforts to incorporate these evidence-based principles of rehabilitative medicine into the management of schizophrenia.

[60] **Velligan DI, Kern RS, Gold JM. Cognitive rehabilitation for schizophrenia and the putative role of motivation and expectancies. *Schizophr Bull.* 2006 Jul;32(3):474-85.**

Cognitive rehabilitation (CR) approaches seek to enhance cognitive processes or to circumvent cognitive impairments in schizophrenia in an effort to improve functional outcome. In this review we examine the research findings on the 8 evidence-based approaches to cognitive remediation listed in the 2005 Training Grid Outlining Best Practices for Recovery and Improved Outcomes for People With Serious Mental Illness, developed by the American Psychological Association Committee for the Advancement of Professional Practice. Though the approaches vary widely in theoretical orientation and methods of intervention, the results are, for the most part, encouraging. Improvements in attention, memory, and executive functioning have been reported. However, many persons with schizophrenia are more impaired in real-world functioning than one would expect given the magnitude of their cognitive deficits. We may need to look beyond cognition to other targets such as motivation to identify the reasons that many persons with schizophrenia demonstrate such marked levels of disability. Although a number of current CR approaches address motivation to varying degrees, treating motivation as a primary target may be needed to maximize CR outcomes.

[61] **Waghorn G, Chant D, King R. Work-Related Self-Efficacy Among Community Residents with Psychiatric Disabilities. *Psychiatric Rehabilitation Journal.* 2005 Fall;29(2):105-13.**

A new measure of work-related self-efficacy for people with psychiatric disabilities is reported. The 37-item scale measures self-efficacy in four relevant activity domains: 1) vocational service access and career planning, 2) job acquisition, 3) work-related social skills, and 4) general work skills. The scale was developed in a 12-month longitudinal survey of urban residents diagnosed with schizophrenia or schizoaffective disorder (n = 104). Results indicate validity of both a four-factor structure differentiating four core skill domains, and a single factor representing total work-related self-efficacy. The favorable psychometric properties support further research and trial applications in supported employment and psychiatric vocational rehabilitation.

[62] **Watzke S, Brieger P, Kuss O, Schoettke H, Wiedl KH. A longitudinal study of learning potential and rehabilitation outcome in schizophrenia. *Psychiatric Services.* 2008 Mar;59(3):248-55.**

OBJECTIVE: The study examined whether a measure of learning potential is prospectively related to the success of a vocational rehabilitation program for patients with severe mental illness in Germany. **METHODS:** At rehabilitation intake (November 2002 to January 2004), 41 persons with schizophrenia or schizoaffective disorders completed a test-train-test version of the Wisconsin Card Sorting Test as a measure of learning potential. Research participants were classified as high scorers, learners, or nonlearners. Rehabilitation outcome was assessed with measures of work capability during the rehabilitation program, level of functioning during rehabilitation and at three-month follow-up, and level of vocational integration at three-month follow-up. **RESULTS:** Individual learning potential was associated with the improvement of work-related learning ability during rehabilitation and with the level of functioning and the level of vocational integration at three-month follow-up (about 15 months after the initial testing). Generally, high scorers had better rehabilitation outcome at all assessment points regarding all outcome measures. Even though learners and nonlearners started at comparable levels at the beginning of the rehabilitation, learners benefited more from the program, whereas nonlearners showed a rather unfavorable rehabilitation outcome. **CONCLUSIONS:** Findings supported the assumption that learning potential is an informative predictor of rehabilitation outcome and may add information beyond static cognitive measures. Learning potential should be considered in the further development of vocational rehabilitation programs.

[63] **Wexler BE, Bell MD. Cognitive remediation and vocational rehabilitation for schizophrenia. *Schizophrenia Bulletin.* 2005 Oct;31(4):931-41.**

Cognitive deficits are a central and debilitating aspect of schizophrenia and other major mental illnesses. Although they are largely refractory to pharmacotherapy, multiple studies have now shown that large and lasting improvements in cognition can result from behavioral interventions. We will review our work over the past 10 years demonstrating that cognitive remediation treatment together with work therapy or supported employment can lead to large, lasting, and clinically relevant improvements in cognition and work functioning. While we will make some references to the work of others in these same areas, this is not a

general review of these areas of research. Instead, the goal is to provide the rationale for the progression of our studies, describe the methods, and summarize the results, so that readers may understand, critique, and improve upon what we have done.

[64]Yip KS. **The importance of subjective psychotic experiences: implications on psychiatric rehabilitation of people with schizophrenia.** *Psychiatric Rehabilitation Journal*. 2004 Summer;28(1):48-54.

Starting with Jaspers in 1910, subjective psychotic experiences of people with schizophrenia became an important area in treatment and rehabilitation of people with schizophrenia. Nevertheless, this area of study is overshadowed by the statistically and diagnostically oriented DSM movement. In this article, the writer tries to re-visit various approaches in understanding subjective psychotic experiences of people with schizophrenia. It seems that subjective psychotic experiences represent persons' inner feelings; their spontaneous struggle in their process of treatment and rehabilitation. All these experiences are meaningful for the persons with psychiatric disabilities. In this paper, the writer tries to show that empathetic understanding of subjective experience can help individuals to re-establish a meaningful relationship with people with schizophrenia and motivate them to become involved in their own rehabilitation process.

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DREES-MiRe et CNSA, en collaboration avec la DGAS, le GIS-IRESP et l'UNAFAM

Rapport final : Annexe 4 – Résumé des articles sur le thème Functional outcome et schizophrénie

[1] Bodén R, Sundström J, Lindström E, Lindström L. **Association between symptomatic remission and functional outcome in first-episode schizophrenia.** *Schizophrenia Research*. 2009 Feb;107(2-3):232-7.

Although operational criteria for remission in schizophrenia have recently been proposed, the association of this definition with broader functional outcome has not yet been established in first-episode patients. The severity criteria for remission consist of a score of mild or less on eight core symptoms of schizophrenia. We applied the severity criteria for remission to a sample of patients with first-episode schizophrenia (n=76) in order to explore the association with functional outcome five years after first presentation to mental healthcare. We evaluated whether other factors than those included in the remission definition predicted good function in logistic regression models. The discriminatory capacities for remission and other factors for good function were tested using C-statistics. The proportions of remitters and non-remitters having good function were 73% and 17%, respectively. Furthermore, remitters had a higher level of subjective satisfaction with life. In comparison with non-remission, symptomatic remission was strongly associated with good function: odds ratio 13.2, 95% confidence interval, 4.3 to 40.3. A duration of untreated psychosis of three months or less as compared with a longer duration was associated with having good function at a five-year follow-up independently of remission status. The discriminatory capacity for symptomatic remission between having good function vs. not was acceptable (C-statistic=0.78), which was significantly improved to an excellent discriminatory capacity by adding duration of untreated psychosis less than three months (C-statistic=0.83, p=0.04). In conclusion, core symptoms of schizophrenia have an important limiting effect on functioning and subjective life satisfaction in the early course of the illness.

[2] Bowie CR, Harvey PD. **Cognitive deficits and functional outcome in schizophrenia.** *Neuropsychiatric Disease and Treatment*. 2006 Dec;2(4):531-6.

Cognitive dysfunction is a core feature of schizophrenia. Deficits are moderate to severe across several domains, including attention, working memory, verbal learning and memory, and executive functions. These deficits pre-date the onset of frank psychosis and are stable throughout the course of the illness in most patients. Over the past decade, the focus on these deficits has increased dramatically with the recognition that they are consistently the best predictor of functional outcomes across outcome domains and patient samples. Recent treatment studies, both pharmacological and behavioral, suggest that cognitive deficits are malleable. Other research calls into question the meaningfulness of cognitive change in schizophrenia. In this article, we review cognitive deficits in schizophrenia and focus on their treatment and relationship to functional outcome.

[3] Bowie CR, Harvey PD. Communication abnormalities predict functional outcomes in chronic schizophrenia: differential associations with social and adaptive functions. *Schizophrenia Research*. 2008 Aug;103(1):240-7.

Communication abnormalities are hallmark features of schizophrenia. Despite the prevalence and persistence of these symptoms, little is known about their functional implications. In this study, we examined, in a sample of chronically institutionalized schizophrenia patients (N=317), whether two types of communication abnormalities (i.e., verbal underproductivity and disconnected speech) had differential relationships with social and adaptive outcomes. Baseline ratings of verbal underproductivity, disconnected speech, global cognitive performance, and clinical symptoms, were entered into stepwise regression analyses to examine their relationship with 2.5 year social and adaptive outcomes. At baseline, disconnected speech was significantly associated with socially impolite behavior, while verbal underproductivity was associated with social disengagement and impaired friendships. Both types of communication abnormalities were significantly associated with other types of social skills. Verbal underproductivity predicted follow-up social skills, social engagement, and friendships, accounting for more variance than cognition or symptoms. In contrast to social outcomes, adaptive outcomes were predicted by baseline neurocognition and clinical symptoms, but not communication abnormalities. These findings provide evidence for specific relationships of communication disorder subtypes with diverse impairments in social functions. In this chronically institutionalized sample, communication disorder was a stronger predictor of social, but not adaptive, outcomes than neurocognition or clinical symptoms.

[4] Brekke JS, Ansel M, Long J, Slade E, Weinstein M. Intensity and continuity of services and functional outcomes in the rehabilitation of persons with schizophrenia. *Psychiatric Services*. 1999 Feb;50(2):248-56.

The intensity and continuity of services delivered to individual clients in a community-based psychosocial rehabilitation program were examined in relationship to functional changes in the clients that occurred during the first 12 mo of the program. Ss were 41 clients with schizophrenia or schizoaffective disorder who were admitted to an intensive psychosocial rehabilitation program. Measures of clinical and psychosocial functioning were derived from client interviews administered at baseline and six and 12 mo later. Measures of service intensity and continuity came from data gathered daily by staff over 12 mo. The results supported the hypotheses that greater intensity and longitudinal continuity of services are related to more client improvement as indicated by reduced rates of hospitalization and improved psychosocial functioning after both six and 12 months. Although clients' symptom levels increased over time, a significant relationship was noted between service intensity and continuity and better symptom outcomes after 12 mo. Multiple regression analyses indicated that an average of 22%, and as much as 28%, of the change in clinical and functional outcomes after 12 mo of rehabilitation was explained by the intensity and longitudinal continuity of services.

[5] Brekke JS, Long J, Nesbitt N, Sobel E. The impact of service characteristics on functional outcomes from community support programs for persons with schizophrenia: a growth curve analysis. *Journal of Consulting and Clinical Psychology*. 1997 Jun;65(3):464-75.

A total of 172 individuals diagnosed with a schizophrenia spectrum disorder were followed for 36 months in 3 distinct models of community-based care. Functional outcome data gathered every 6 months were combined with service implementation data to test hypotheses concerning the impact of service characteristics on prospective client outcomes. The results using hierarchical linear modeling supported associations between the intensity, specificity, and longitudinality of services and improved client outcomes. Specifically, more intense services were associated with higher levels or rates of improvement on all indices of clinical and psychosocial functioning. The specificity results suggested that services needed to be targeted to specific areas of functioning in order for improvement to occur. The effect of longitudinality was contingent on the outcome domain examined.

[6] Brekke JS, Kay DD, Lee KS, Green MF. Biosocial pathways to functional outcome in schizophrenia. *Schizophrenia Research*. 2005 Dec ;80(2-3):213-5.

Biosocial models are preeminent in the study of schizophrenia, yet there has been little empirical testing of these models.

OBJECTIVE: This study provided the first test of a biosocial causal model of functional outcome in schizophrenia, using neurocognition, social cognition, social competence and social support as predictors of both global and specific domains of functional outcome. **METHOD:** The design used baseline variables to predict both concurrent functional status and prospective 12-month functional outcome. Subjects were recruited upon admission to outpatient community-based psychosocial rehabilitation programs shown in previous studies to be effective in improving functional outcomes. 139 individuals diagnosed with schizophrenia or schizoaffective disorder participated in the study; 100 participants completed the 12-month assessments. Face-to-face interviews assessed neurocognitive functioning (with five neuropsychological measures), social cognition (as perception of emotion), social competence, social support, and functional outcome which consisted of items covering the domains of social, independent living, and work functioning. **RESULTS:** Path analysis modeling showed that the proposed biosocial models had strong fit with the data, for both concurrent and 12-month global functional outcomes, with fit indices ranging from .95 to .98. The model explained 21% of the variance in concurrent global functional outcome, and 14% of the variance in 12-month prospective outcome. **CONCLUSIONS:** The support for this model was strong, and it has implications for understanding the causal factors related to functional outcome, as well as for intervention strategies for improving functional outcomes in schizophrenia.

[7] **Brill N, Levine SZ, Reichenberg A, Lubin G, Weiser M, Rabinowitz J. Pathways to functional outcomes in schizophrenia: the role of premorbid functioning, negative symptoms and intelligence. Schizophrenia Research. 2009 May;110(1-3):40-6.**

BACKGROUND: Social and intellectual premorbid functioning are generally estimated retrospectively, and related to clinical or hospitalization outcomes in schizophrenia. Yet the relationship between premorbid functioning assessed prior to psychiatric hospitalization and postmorbid functional outcomes has not been examined. **OBJECTIVES:** To test competing models of the relationship between (a) functional outcomes with (b) premorbid functioning assessed on nationally administered tests prior to psychiatric hospitalization, postmorbid intellectual functioning and symptomatology using a historical prospective design. **METHODS:** Ninety one inpatient and outpatient males with schizophrenia or schizoaffective disorder, aged 19 to 35, were examined using the Positive and Negative Syndrome Scale, the WAIS-III and Strauss and Carpenter social and occupational functional outcome scale. Premorbid intelligence and social functioning data were obtained from national standardized tests administered during high school prior to first hospitalization for schizophrenia. **RESULTS:** Path modeling showed that premorbid intelligence and behavioral functioning directly predicted postmorbid IQ and negative symptoms, and indirectly predicted postmorbid social and occupational functioning via negative symptoms. Item level analysis indicated that better social and occupational outcomes occurred in a group with few negative symptoms. **CONCLUSIONS:** Premorbid functioning, postmorbid IQ and negative symptoms are related, yet the relationship between premorbid functioning and postmorbid functional outcomes appears to be mediated by postmorbid negative symptoms.

[8] **Brittain P, Ffytche DH, McKendrick A, Surguladze S. Visual processing, social cognition and functional outcome in schizophrenia. Psychiatry Research. 2010;178 (2):270-5.**

Visual processing deficits are well recognised in schizophrenia and have potentially important clinical implications. First, the pattern of deficits for different visual tasks may help understand the underlying pathophysiology of the visual dysfunction. Second, several studies report deficits correlating with functional outcomes, suggesting that outcome improvement is possible through visual remediation strategies. We investigated these issues in a group of 64 schizophrenia patients and matched controls with a battery of visual tasks targeting different points along the visual pathways and by examining direct and indirect relationships (via a potential mediator) of such deficits to functional outcome. The schizophrenia group was significantly worse on the visual tasks overall, with the deficit constant for low- and high-level processing. Zero-order correlations suggested minimal association between vision and outcome, however, correlations between three visual tasks and 'social perceptual' ability were found which in turn correlated with functional outcome; path analysis confirmed a significant but small and indirect effect of 'biological motion' processing ability on functional outcome mediated by 'social perception'. In conclusion, the pathophysiology of visual dysfunction affects low- and high-level visual areas similarly and the relationship between deficits and outcome is small and indirect.

[9] **Carter CS. Understanding the glass ceiling for functional outcome in schizophrenia [Editorial]. American Journal of Psychiatry. 2006 Mar;163(3):356-8.**

[10] **Choi J, Mogami T, Medalia A. Intrinsic Motivation Inventory: An Adapted Measure for Schizophrenia Research. Schizophrenia Bulletin 2009;36(5):966-76.**

This article describes the psychometric validation of a scale designed to measure intrinsic motivation (IM) in schizophrenia.

Recent studies have highlighted the relationship between motivation and functional outcome in schizophrenia and identified IM as an important mediating factor between neurocognition and psychosocial outcome. It therefore becomes imperative to have validated measures of IM for empirical use. To that end, we validated a self-report IM scale that gauges the central motivational structures identified by Self-determinism Theory as pertinent to cognitive task engagement, skill acquisition, treatment compliance, and remediation outcome. Participants were schizophrenia outpatients involved in a cognitive remediation study ($n = 58$), a convenience subsample of clinically stable schizophrenia outpatients ($n = 15$), and a group of healthy normals ($n = 22$). The Intrinsic Motivation Inventory for Schizophrenia Research (IMI-SR) is a concise instrument, possessing good internal consistency ($\alpha = .92$) and test-retest reliability (intraclass correlation = $.77$). Data were analyzed to abridge the original 54 items into a final 21-item questionnaire comprised of 3 domains relevant to motivation for treatments (interest/enjoyment, perceived choice, value/usefulness). The scale was highly associated with germane constructs of motivation for health-related behaviors, including perceived competency for attempting challenging tasks and autonomous treatment engagement. Importantly, the scale was able to distinguish improvers and nonimprovers on a cognitive task and actual learning exercises, delineate high vs low treatment attendance, and demonstrate sensitivity to motivational changes due to intervention variation. The IMI-SR is a viable instrument to measure IM in schizophrenia as part of a cognitive remediation protocol or psychosocial rehabilitation program.

[11] Couture SM. Neurocognition, social cognition, and functional outcome in schizophrenia and high-functioning autism. Dissertation Abstracts International: Section B: The Sciences and Engineering. 2007;67(10-B):6048.

The purpose of this dissertation was to compare two models of the relationships among neurocognition, social cognition, and functional outcome in schizophrenia and high-functioning autism (HFA). Forty-five participants with schizophrenia and thirty-four participants with HFA completed a battery of neurocognitive and social cognitive tasks, and the Social Functioning Scale as a measure of functional outcome. Composite variables were created for all three constructs. Within the schizophrenia sample, path analyses revealed a significant and negative relationship between neurocognition and functional outcome, a nonsignificant, positive relationship between social cognition and functional outcome, and modest support for social cognition serving as a mediator between neurocognition and functional outcome. Within the HFA sample, neither neurocognition nor social cognition significantly predicted functional outcome. Consistent with previous research, a strong, positive relationship between neurocognition and social cognition emerged in both samples, although this appears to be more robust for individuals with schizophrenia. In contrast, only a small proportion of the variance in functional outcome was accounted for by the models. It is suggested that use of the Social Functioning Scale may have contributed to these findings.

[12] Davis LW, Lysaker PH. Cognitive behavioral therapy and functional and metacognitive outcomes in schizophrenia: A single case study. Cognitive and Behavioral Practice. 2005;12(4):468-78.

While much attention has been paid to how CBT can address symptoms in schizophrenia spectrum disorders, less is known about how it might be applied to target psychosocial dysfunction. This case study describes the treatment of a man with schizophrenia over a 6-month period using the Indianapolis Vocational Intervention Protocol (IVIP). The IVIP offered a paid work placement and concurrent group and individual CBT to address dysfunctional beliefs that interfere with effective work function. Therapeutic strategies employed focused on enhancing metacognition and identifying and restructuring dysfunctional beliefs about self and work. Gains were noted in metacognitive capacity along with decreases in the intensity of salient dysfunctional beliefs. Work behaviors were observed to improve and symptoms of emotional discomfort were reduced.

[13] Dickinson D, Tenhula W, Morris S, Brown C, Peer J, Spencer K, et al. A randomized, controlled trial of computer-assisted cognitive remediation for schizophrenia. American Journal of Psychiatry. 2010 Feb;167(2):170-80.

OBJECTIVE: There is considerable interest in cognitive remediation for schizophrenia, but its essential components are still unclear. The goal of the current study was to develop a broadly targeted computer-assisted cognitive remediation program and conduct a rigorous clinical trial in a large group of schizophrenia patients. **METHOD:** Sixty-nine people with schizophrenia or schizoaffective disorder were randomly assigned to 36 sessions of computer-assisted cognitive remediation or an active control condition. Remediation broadly targeted cognitive and everyday performance by providing supportive, graduated training and practice in selecting, executing, and monitoring cognitive operations. It used engaging computer-based cognitive exercises and one-on-one training. A total of 61 individuals (34 in remediation group, 27 in control group) engaged in treatment, completed posttreatment assessments, and were included in intent-to-treat analyses. Primary outcomes were remediation exercise metrics, neuropsychological composites (episodic memory, working memory, attention, executive functioning, and processing speed), and proxy measures of community functioning. **RESULTS:** Regression modeling indicated that performance on eight of 10 exercise metrics improved significantly more in the remediation condition than in the control condition. The mean effect size,

favoring the remediation condition, was 0.53 across all 10 metrics. However, there were no significant benefits of cognitive remediation on any neuropsychological or functional outcome measure, either immediately after treatment or at the 3-month follow-up. **CONCLUSIONS:** Cognitive remediation for people with schizophrenia was effective in improving performance on computer exercises, but the benefits of training did not generalize to broader neuropsychological or functional outcome measures. The evidence for this treatment approach remains mixed.

[14] **Eack SM, Greeno CG, Pogue-Geile MF, Newhill CE, Hogarty GE, Keshavan MS. Assessing social-cognitive deficits in schizophrenia with the Mayer-Salovey-Caruso Emotional Intelligence Test. *Schizophrenia Bulletin*. 2010 Mar;36(2):370-80.**

The emotion management subscale of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) has recently been recommended by the National Institute of Mental Health Measurement and Treatment Research to Improve Cognition in Schizophrenia committee as the sole measure of social cognition for trials of cognitive enhancement in schizophrenia, yet the psychometric properties of this subscale and the larger instrument in schizophrenia patients have not been thoroughly examined. This research presents a psychometric investigation of the MSCEIT in a sample of 64 early course outpatients with schizophrenia, schizoaffective, or schizophreniform disorder. Results demonstrated that the MSCEIT possesses adequate internal consistency reliability among its branch and total scales and that patients' branch and overall test performance was significantly below normative levels. Estimates of discriminant and concurrent validity indicated that the MSCEIT diverged from measures of neurocognitive functioning and psychopathology, but was only modestly related with objective measures of functional outcome. Convergent validity estimates suggested that, contrary to expectations, the MSCEIT did not correlate with a behavioral measure of social cognition. Finally, exploratory factor analyses suggested the possibility of a shift in the latent structure of emotional intelligence in schizophrenia, compared with studies with healthy individuals. These findings support the use of the MSCEIT as a reliable and potentially valid method of assessing the emotional components of social cognition in schizophrenia, but also point to a need for additional measurement development efforts to assess broader social-cognitive domains that may exhibit stronger relations with functional outcome. Further investigation is warranted to examine the instrument's latent factor structure and convergence with other measures of social cognition.

[15] **Fiszdon JM, Johannesen JK. Comparison of computational methods for the evaluation of learning potential in schizophrenia. *Journal of the International Neuropsychological Society*. 2010 Jul;16(4):613-20.**

Learning potential (LP) refers to the ability to improve cognitive performance as a result of training. It is typically assessed by test-train-test administrations of a task, wherein changes in pre-post performance are an index of LP. In schizophrenia research, LP has been suggested as a mediator of the relationship between static neurocognition and functional outcome. While a number of studies do indicate that LP assessment improves prediction of functioning beyond standard administrations of the same task, multiple approaches of computing LP indices have been used in this work. Multiple psychometric issues have been raised with respect to computation of change scores, but have not been widely recognized in LP assessment. To address this issue, the current study aimed to evaluate the test-retest reliability, interrelatedness, construct, and criterion validity of several conventional indices of LP, obtained from a test-train-test version of a list-learning task administered to 43 individuals with chronic schizophrenia. Overall, test-retest and intercorrelation coefficients indicated variable reliability and convergence across methods. While LP indices generally correlated more highly with independent measures of neurocognition and community functioning than pretraining list learning scores, coefficients were comparably small. Recommendations and measurement issues inherent to the LP construct are discussed.

[16] **Foussias G, Remington G. Negative symptoms in schizophrenia: avolition and Occam's razor. *Schizophrenia Bulletin*. 2010 Mar;36(2):359-69.**

The identification of schizophrenia's negative symptoms dates back to the earliest descriptions of Kraepelin and Bleuler, who each highlighted the central role of avolition in the phenomenology and course of this illness. Since, there have been numerous advances in our understanding of schizophrenia, and the present review tracks the changes that have taken place in our understanding of negative symptoms, their description and measurement. That these symptoms represent a distinct domain of the illness is discussed in the context of their ties to other symptoms and functional outcome. The underlying structure of the negative symptom construct is explored, including several lines of investigation that point towards diminished expression and amotivation as key underlying subdomains. We also discuss findings of intact emotional experience and consummatory pleasure in individuals with schizophrenia, calling into question the presence of anhedonia in this illness. We conclude with a reconceptualization of the negative symptoms, suggesting amotivation (ie, avolition) represents the critical component, particularly in regard to functional outcome. Further exploration and clarification of this core deficit will ultimately enhance our neurobiological understanding of schizophrenia, as well as strategies that may improve outcome.

[17] Galderisi S, Piegari G, Mucci A, Acerra A, Luciano L, Rabasca AF, et al. **Social skills and neurocognitive individualized training in schizophrenia: comparison with structured leisure activities.** *European Archives Psychiatry and Clinical Neuroscience*. 2010 Jun;260(4):305-15.

Cognitive impairment and deficits in social skills have been largely documented in patients with schizophrenia and are increasingly recognized as rate-limiting factors for recovery. Evidence has been provided that cognitive training and social skills training (SST) are effective to treat cognitive and social skills impairment in schizophrenia; however, the translation of improved performance on cognitive or social skills tasks into improved functional outcome is controversial. According to recent reviews, interventions providing cognitive training in conjunction with psychosocial rehabilitation have a greater impact on functional outcome than either intervention alone suggesting that the two treatment approaches may work together in a synergistic fashion. The present pilot study was designed to test the hypothesis that an integrated rehabilitation program, including individualized cognitive and SST, is more effective than the structured leisure activities (SLA) carried out in many Italian Mental Health Departments. The primary outcome measure was subjects' personal and social functioning as assessed by the Interview for the assessment of disability. The study is based on a controlled design including randomization to treatment groups, blind assessments and stable pharmacological treatment. Subjects were recruited among patients attending three psychiatric facilities located in the Italian region Campania. Thirty patients were randomized to the experimental program "social skills and neurocognitive individualized training" (SSANIT), and 30 to SLA. The two programs were matched for the overall duration as well as frequency and duration of the sessions. The two groups of patients did not differ at baseline on psychopathology, neurocognitive and personal/social functioning. After 6 months of treatment, personal and social functioning was significantly better in patients assigned to SSANIT than in those assigned to usual rehabilitation activities practiced in Mental Health Departments. No advantage was observed for either program on psychopathological and cognitive outcome indices. As for other integrated programs, also for SSANIT further studies are needed to verify generalization and persistence of the observed gains, and to clarify most adequate length and doses of the therapeutic intervention as well as the relative contribution of each program component to its impact on subjects' disability.

[18] Gard DE, Fisher M, Garrett C, Genevsky A, Vinogradov S. **Motivation and its relationship to neurocognition, social cognition, and functional outcome in schizophrenia.** *Schizophrenia Research*. 2009 Nov;115(1):74-81.

OBJECTIVE: A burgeoning area of research has focused on motivational deficits in schizophrenia, producing hypotheses about the role that motivation plays in the well-known relationship between neurocognition and functional outcome. However, little work has examined the role of motivation in more complex models of outcome that include social cognition, despite our increased understanding of the critical role of social cognition in community functioning in schizophrenia, and despite new basic science findings on the association between social cognitive and reward processing in neural systems in humans. Using path analysis, we directly contrasted whether motivation 1) causally influences known social cognitive deficits in schizophrenia, leading to poor outcome or 2) mediates the relationship between social cognitive deficits and outcome in this illness. **METHOD:** Ninety one patients with schizophrenia or schizoaffective disorder completed interview-based measures of motivation and functional outcome as well as standardized measures of neurocognition and social cognition in a cross-sectional design. **RESULTS:** In line with recent research, motivation appears to mediate the relationship between neurocognition, social cognition and functional outcome. A model with motivation as a causal factor resulted in poor fit indicating that motivation does not appear to precede neurocognition. **CONCLUSIONS:** Findings in the present study indicate that motivation plays a significant and mediating role between neurocognition, social cognition, and functional outcome. Potential psychosocial treatment implications are discussed, especially those that emphasize social cognitive and motivational enhancement.

[19] Gil Sanz D, Diego Lorenzo M, Bengochea Seco R, Arrieta Rodríguez M, Lastra Martínez I, Sánchez Calleja R, Alvarez Soltero A. **Efficacy of a social cognition training program for schizophrenic patients: a pilot study.** *Spanish Journal of Psychology*. 2009 May;12(1):184-91.

Psychosocial functioning impairment is recognized as a core feature of schizophrenia. Numerous studies have assessed the process that may underlie this impairment. In the last years, one of these processes that has been studied more is social cognition, which has been proposed as a mediator variable between neurocognition and functional outcome. Social cognition includes the subdomains of emotion recognition and social perception, and in recent years several authors have developed diverse training programs in these areas. The purpose of the present article is to assess the efficacy of the Social Cognition Training Program, a program that includes emotion recognition training and social perception training. The sample was made up of 14 outpatients with a diagnosis of schizophrenia according to CIE-10 criteria, randomly divided into two groups: experimental and control. All patients were assessed before and after the training program. Cognitive and psychopathological

variables, social functioning, emotion recognition and social perception performance were assessed. Results suggest improvement in social perception and interpretation in the experimental group, in comparison with the control group, but not in emotion recognition. No significant correlations were obtained between social cognition training and other variables tested.

[20] **González-Blanch C, Perez-Iglesias R, Pardo-García G, Rodríguez-Sánchez JM, Martínez-García O, Vázquez-Barquero JL, Crespo-Facorro B. Prognostic value of cognitive functioning for global functional recovery in first-episode schizophrenia. *Psychological Medicine*. 2010 Jun;40(6):935-44.**

BACKGROUND: It has become widely accepted that cognitive deficits in schizophrenia are related to functional outcome. However, it remains to be seen whether these associations are relevant for predicting which cases will have a global functional recovery. In this study, we attempt to determine whether global functional recovery (integrating social and occupational outcomes) after first-episode schizophrenia (FES) can be predicted by cognitive variables. METHOD: A total of 131 FES patients with functional deficits (n=97) and functional recovery (n=34) as determined at 1-year follow-up were examined. Neuropsychological, sociodemographic, pre-morbid and clinical data at baseline were analysed using independent groups comparisons and a logistic regression method. RESULTS: Sustained attention and negative symptoms emerged as significant predictors of good global functional outcome. Although the model revealed a high accuracy (91%) in the classification of patients with functional deficits, it was unacceptably low (26%) in the classification of patients with global functional recovery. CONCLUSIONS: The limitations found in the prediction of a favourable global functional outcome may well be an indication for a need to address the role of other factors not commonly included in longitudinal studies of long-term outcomes in schizophrenia.

[21] **Granholm E, McQuaid JR, Link PC, Fish S, Patterson T, Jeste DV. Neuropsychological predictors of functional outcome in Cognitive Behavioral Social Skills Training for older people with schizophrenia. *Schizophrenia Research*. 2008 Mar;100(1-3):133-43.**

Cognitive Behavioral Social Skills Training (CBSST) is a 24-session weekly group therapy intervention to improve functioning in people with schizophrenia. In our prior randomized clinical trial comparing treatment as usual (TAU) with TAU plus group CBSST (Granholm, E., McQuaid, J.R., McClure, F.S., Auslander, L., Perivoliotis, D., Pedrelli, P., Patterson, T., Jeste, D.V., 2005. A randomized controlled trial of cognitive behavioral social skills training for middle-aged and older outpatients with chronic schizophrenia. *Am. J. Psychiatry* 162, 520-529.), participants with schizophrenia in CBSST showed significantly better functional outcome than participants in TAU. The present study was a secondary analysis of neuropsychological predictors of functional outcome in our prior CBSST trial. We examined (1) whether neuropsychological impairment at baseline moderated functional outcome in CBSST relative to TAU, and (2) whether improvement in neuropsychological abilities mediated improvement in functional outcome in CBSST. Attention, verbal learning/memory, speed of processing, and executive functions were assessed at baseline, end of treatment, and 12-month follow-up. Greater severity of neuropsychological impairment at baseline predicted poorer functional outcome for both treatment groups (nonspecific predictor), but the interaction between severity of neuropsychological impairment and treatment group was not significant (no moderation). Effect sizes for the difference between treatment groups on functional outcome measures at 12-month follow-up were similar for participants with relatively mild ($d=.44-.64$) and severe ($d=.29-.60$) neuropsychological impairment. Results also did not support the hypothesis that improvement in neuropsychological abilities mediated improvement in functioning in CBSST. Adding CBSST to standard pharmacologic care, therefore, improved functioning relative to standard care alone, even for participants with severe neuropsychological impairment, and this improvement in functioning was not related to improvement in neuropsychological abilities in CBSST.

[22] **Green MF. Cognitive impairment and functional outcome in schizophrenia and bipolar disorder. *Journal of Clinical Psychiatry*. 2006;67 Suppl 9:3-8; discussion 36-42.**

A considerable amount of evidence supports the relationship between cognitive impairment and functional outcomes in schizophrenia. Cognitive impairment is considered a core feature of schizophrenia that includes problems in speed of processing, attention/vigilance, working memory, verbal learning, visual learning, reasoning and problem solving, and social cognition. These deficits can also serve as an endophenotype for the illness in studies of genetics. Cognition is considered a reasonable treatment target in individuals with schizophrenia, partly because cognitive deficits contribute to poor functional outcomes. Similarly, evidence is beginning to emerge that cognitive impairment may also be a core feature of bipolar disorder. In addition, cognitive deficits adversely affect functional outcomes in bipolar disorder. This evidence suggests that cognition can be considered a reasonable target for intervention in both schizophrenia and bipolar disorder.

[23] **Green MF. Cognition, drug treatment, and functional outcome in schizophrenia: a tale of two transitions**

[Editorial]. American Journal of Psychiatry. 2007 Jul;164(7):992-4.

[24] Green MF, Kern RS, Braff DL, Mintz J. Neurocognitive deficits and functional outcome in schizophrenia: are we measuring the "right stuff"? Schizophrenia Bulletin. 2000;26(1):119-36.

There has been a surge of interest in the functional consequences of neurocognitive deficits in schizophrenia. The published literature in this area has doubled in the last few years. In this paper, we will attempt to confirm the conclusions from a previous review that certain neurocognitive domains (secondary verbal memory, immediate memory, executive functioning as measured by card sorting, and vigilance) are associated with functional outcome. In addition to surveying the number of replicated findings and tallying box scores of results, we will approach the review of the studies in a more thorough and empirical manner by applying a meta-analysis. Lastly, we will discuss what we see as a key limitation of this literature, specifically, the relatively narrow selection of predictor measures. This limitation has constrained identification of mediating variables that may explain the mechanisms for these relationships.

[25] Green MF, Kern RS, Heaton RK. Longitudinal studies of cognition and functional outcome in schizophrenia: implications for MATRICS. Schizophrenia Research. 2004 Dec 15;72(1):41-51.

It is generally accepted that cognitive deficits in schizophrenia are related to functional outcome. However, support for longitudinal relationships between cognition and functional outcome has not been as well documented. The current paper presents a review of 18 recently published longitudinal studies (minimum 6-month follow up) of the relationships between cognition and community outcome in schizophrenia. Results from these studies reveal considerable support for longitudinal associations between cognition and community outcome in schizophrenia. These studies demonstrate that cognitive assessment predict later functional outcome and provide a rationale for psychopharmacological interventions for cognitive deficits in schizophrenia. Although the relationships between cognition and community outcome are well-supported, it is clear that community functioning is also affected by a host of factors apart from cognition that are usually not considered in clinical trial studies (e.g., psychosocial rehabilitation and educational/vocational opportunities). In the second part of the paper, we consider intervening steps between cognitive performance measures and community outcome. These steps are apt to have important implications for clinical trials of cognition-enhancing agents in schizophrenia.

[26] Harvey KE, Galletly CA, Field C, Proeve M. The effects of verbalisation on cognitive performance in schizophrenia: a pilot study using tasks from the Delis Kaplan Executive Function System. Neuropsychological Rehabilitation. 2009 Oct;19(5):733-41.

Cognitive impairment is common in schizophrenia, and has adverse effects on functional outcome. Cognitive remediation strategies in which people with schizophrenia speak aloud (verbalise) during task performance have demonstrated some success in improving performance on the Wisconsin Card Sorting Test. This study extends previous research by assessing whether verbalisation also improves performance on tasks selected from the Delis-Kaplan Executive Function System (D-KEFS). Twenty two subjects with schizophrenia participated in the study. We used a within subjects design to compare performance on the D-KEFS Tower Test and Trail Making Test when participants (a) produced concurrent verbalisation, or (b) remained silent. Results demonstrated selective benefits of verbalisation on a neuropsychological task requiring multiple executive functions (number-letter switching task), while performance on tasks requiring simpler single-component cognitive functions (visual scanning and motor speed tasks) was adversely affected. The effects of verbalisation on the cognitive task performance of patients with schizophrenia differ depending on the nature of the task. Benefits are seen in tests of executive skills but performance worsens in single component cognitive tasks. When developing cognitive remediation strategies for people with schizophrenia, consideration should be given to the nature and cognitive demands of each task before recommending verbalisation strategies.

[27] Heinrichs RW, Ammari N, Miles A, McDermid Vaz S, Chopov B. Psychopathology and cognition in divergent functional outcomes in schizophrenia. Schizophrenia Research. 2009 Apr;109(1-3):46-51.

Cognitive performance rather than symptoms, especially positive symptoms, is regarded as the primary predictor of functional outcome in schizophrenia. However, contradictory evidence exists and many studies fail to sample from the extremes of outcome measures. This study tested whether the differential importance assigned to symptoms and cognitive impairment is supportable in patients with high and low levels of community independence. Schizophrenia patients with highly unfavorable (n=24) and highly favorable (n=28) functional outcomes as defined by community support requirements were studied. Standard cognitive and psychopathology measures were analyzed using independent groups comparisons and outcome prediction with logistic regression methods. Symptom severity and cognitive data separately accounted for significant amounts of variance in community independence. Positive as well as negative symptoms, non-psychotic psychopathology and cognition

generated large effect sizes between highly unfavorable and favorable outcome groups. The conditional validity of both overall psychopathology and positive symptoms was significant over and above the contribution of cognition to outcome prediction. Results suggest researchers may have underestimated the role of psychopathology in general and positive symptoms in particular as potential determinants of functional status in schizophrenia.

[28] **Hofer A, Rettenbacher MA, Widschwendter CG, Kemmler G, Hummer M, Fleischhacker WW. Correlates of subjective and functional outcomes in outpatient clinic attendees with schizophrenia and schizoaffective disorder. *European Archives of Psychiatry and Clinical Neuroscience*. 2006 Jun;256(4):246-55.**

Outcome in schizophrenia is multidimensional and, thus, consists of clinical, humanitarian, rehabilitative and cost domains. Accordingly, recovery is conceptualized as the ability to function in the community, socially and vocationally, as well as being relatively free of disease-related psychopathology. The present cross-sectional study examined the relationship of premorbid functioning, psychopathology, insight, attitudes toward medication and side-effects, as well as sociodemographic factors with treatment outcomes in terms-of quality of life (QOL) and psychosocial functioning among 60 regular attendees of a specialized schizophrenia outpatient clinic. Both insight into the illness as well as attitudes toward treatment indicated satisfactory compliance. Premorbid school and social functioning were positively correlated with actual employment status, and premorbid social functioning was further positively correlated with QOL and global functioning. Attitudes toward treatment were positively associated with global QOL, and with the patients' living situation. Both positive and negative symptoms as well as asthenia were negatively associated with QOL, while cognitive symptoms negatively influenced occupational functioning. Older patients lived independently and/or in a partnership more often, but had a lesser likelihood of competitive employment. Our observations suggest that subjective and functional outcomes in highly compliant patients are mainly predicted by psychopathological symptoms and unchangeable sociodemographic variables.

[29] **Horan WP, Kern RS, Shokat-Fadai K, Sergi MJ, Wynn JK, Green MF. Social cognitive skills training in schizophrenia: an initial efficacy study of stabilized outpatients. *Schizophrenia Research*. 2009 Jan;107(1):47-54.**

Social cognitive deficits are promising treatment targets for new interventions to improve functional outcome in schizophrenia. A few preliminary studies of inpatients support the feasibility of improving social cognition through psychosocial interventions. This clinical trial evaluated a new 12-session social cognitive skills training program designed to address four aspects of social cognition (affect perception, social perception, attributional style, Theory of Mind) in outpatients with psychosis, a population for whom such interventions will likely be very useful. Thirty-one clinically stabilized outpatients were randomly assigned to a social cognition skills training intervention or a time-matched control condition (illness self-management and relapse prevention skills training), and completed pre- and post-treatment assessments of social cognition, neurocognition, and symptoms. The social cognition group demonstrated a large, significant improvement in facial affect perception, which was not present in the control group. This improvement was independent of changes in basic neurocognitive functioning or symptoms. Results support the efficacy of a social cognitive intervention for community-dwelling outpatients and encourage further development of this treatment approach to achieve broader improvements in social cognition and generalization of treatment gains.

[30] **Horton HK. Schizophrenia, deafness, and functional outcome: the role of neurocognition and social cognition. *Dissertation Abstracts International Section A: Humanities and Social Sciences*. 2005;66(3-A):1163.**

Recent research has highlighted the importance of cognitive factors to functional outcome among adults with schizophrenia. This study aimed to replicate and extend this work by examining the relationship between neurocognition and functional outcome among deaf adults with schizophrenia compared to their hearing counterparts. Sixty-five people with schizophrenia were assessed using measures of memory, attention, visual processing, facial-affect processing, and theory of mind. Neurocognitive variables were used to predict the dependent variable, functional outcome, which was operationalized by a measure that assessed adaptive behaviors that influence community living (e.g., response to stress and anxiety, ability to manage money). Descriptive analyses indicated that deaf and hearing subjects exhibit similar deficits in neurocognition and social cognition. However, hearing status appeared to moderate certain relationships between neurocognitive factors and functional outcome. For example, verbal memory was the strongest predictor of functional outcome for hearing subjects while linguistic ability was the strongest predictor for deaf subjects. The results suggest that neurocognition exerted an effect on functional outcome indirectly through its influence on social cognition. The patterns of mediation varied when the samples were broken down by hearing status and analyzed separately. Namely, the ability to infer another person's intentions (i.e., theory of mind) served as a potent mediator of neurocognition and outcome for hearing subjects only. In contrast, facial-affect processing was a significant mediator of the relationship between neurocognition and outcome for both deaf and hearing subjects. More research is necessary to determine the ways in which theory of mind plays a role in the functioning of different

subgroups of people with schizophrenia. The data from this dissertation research indicates that the development of cognitive rehabilitation strategies should include not only interventions targeting specific neurocognitive abilities, but should include an emphasis on social-cognitive domains, including facial-affect processing and theory of mind. Further, deaf and hearing subjects may benefit from interventions that address different aspects of social cognition. As treatment interventions for schizophrenia evolve, cognitive rehabilitation should be part of an intensive, structured, and comprehensive rehabilitation program.

[31] Kee KS, Green MF, Mintz J, Brekke JS. Is emotion processing a predictor of functional outcome in schizophrenia? *Schizophrenia Bulletin*. 2003;29(3):487-97.

Deficits in the ability to perceive facial and vocal emotion expression are common in schizophrenia. However, relatively little is known about how such deficits might affect functional outcomes. This prospective study examined cross-sectional and longitudinal relationships between perception of emotion and aspects of psychosocial functioning, including family relationships, social relationships, work functioning, and independent living/self-care in 94 clinically stabilized schizophrenia outpatients from five community-based rehabilitation programs. Emotion perception (facial emotion, voice emotion, and affect perception) and psychosocial outcome (Strauss and Carpenter Outcome Scale and Role Functioning Scale) were assessed at baseline and after 12 months of psychosocial rehabilitation. Significant associations were found between perception of emotion and work functioning/independent living both cross-sectionally and prospectively over the 12 months. Causal explanatory models suggested that perception of emotion might cause work functioning/independent living outcome over 1 year. The results remained significant when conceptual disorganization was statistically controlled. We did not find differences between men and women in the correlations between emotion perception and work functioning/independent living. Associations between social functioning/family relationships and perception of emotion were not significant. These findings suggest that emotion processing is a key determinant of work functioning/independent living for individuals with serious mental illness.

[32] Keefe RS, Poe M, Walker TM, Harvey PD. The relationship of the Brief Assessment of Cognition in Schizophrenia (BACS) to functional capacity and real-world functional outcome. *Journal of Clinical and Experimental Neuropsychology*. 2006 Feb;28(2):260-9.

The Brief Assessment of Cognition in Schizophrenia (BACS) assesses five different domains of cognitive function with six tests, and takes about 30-35 minutes to complete in patients with schizophrenia. Previous work has demonstrated the reliability of this measure, and its sensitivity to the deficits of schizophrenia. However, the relationship of this brief cognitive measure to functional outcome has not been determined. Further, future registration trials for potentially cognitive enhancing compounds may not only assess efficacy with cognitive performance measures, but with assessments of real-world functional outcome and functional capacity. The purpose of this study was to determine the relationship between the BACS and a potential co-primary measure for treatment studies of cognition in schizophrenia, and to determine if such a measure accounts for significant variance in functioning beyond that provided by cognitive function. The current study assessed 60 patients with schizophrenia over the course of six months. Cognitive functions were measured with the BACS. Functional capacity was measured with the UCSD Performance-based Skills Assessment (UPSA). Real-world functional outcome was measured with the Independent Living Skills Inventory (ILSI). BACS composite scores were significantly correlated with functional capacity as measured by the UPSA ($r = .65$, $df = 55$, $p < .001$), and real-world functional outcome as assessed by the ILSI ($r = .37$, $df = 56$, $p = .005$). In multiple regression analyses, UPSA scores did not account for additional variance in real-world functioning beyond that accounted for by the BACS. These data suggest that brief cognitive assessments such as the BACS are able to assess aspects of cognition that are related to important functional measures in clinical trials of cognitive enhancement. They also suggest that the measures being considered as potential co-primary indicators of cognitive function for registration trials are significantly correlated with cognition as assessed by brief cognitive assessments.

[33] Leeson VC, Barnes TR, Hutton SB, Ron MA, Joyce EM. IQ as a predictor of functional outcome in schizophrenia: a longitudinal, four-year study of first-episode psychosis. *Schizophrenia Research*. 2009 Jan;107(1):55-60.

Studies of established schizophrenia have consistently found that cognitive function predicts social and clinical outcomes. The findings from first-episode studies have been more variable, with only some studies reporting predictive relationships. We tested the possibility that an index of general cognitive ability, IQ, may be a more sensitive and reliable predictor of outcome in first-episode schizophrenia than specific measures of memory and executive function. Fifty-four patients with first-episode schizophrenia or schizoaffective disorder were assessed for cognitive and social function as well as symptoms at three time points over the four years following first presentation of their psychotic illness. Regression analyses were performed to determine whether IQ and specific neuropsychological measures at first episode and one-year follow-up predicted four-year social function and residual symptoms. The effects of premorbid and concurrent IQ on outcome were also assessed. Premorbid

IQ and IQ at each assessment significantly predicted social function at four-year follow-up. This relationship remained significant after the social function or symptom scores at first presentation were accounted for in the regression. Specific measures predicted certain domains of social function, but these were weaker and less consistent than IQ. The predictive values of cognition on residual symptoms were less strong; the most consistent finding was a relationship between IQ and the negative syndrome. This study suggests that early in the course of schizophrenia, general cognitive ability, as measured by IQ, is a more sensitive and reliable predictor of functional outcome than measures of specific ability.

[34] **Lloyd K, Latif MA, Simpson S, Shrestha KL. Switching stable patients with schizophrenia from depot and oral antipsychotics to long-acting injectable risperidone: efficacy, quality of life and functional outcome.** *Human Psychopharmacology*. 2010 Apr;25(3):243-52.

OBJECTIVE: This international, non-randomised study evaluated maintained efficacy and safety of Risperidone Long-Acting Injectable (RLAI) compared to previous medications. To investigate the possible effect of differences in national health care systems across Europe, the UK subset efficacy, health-related quality of life (HRQoL) and functioning data are reported here. **METHODS:** Patients with schizophrenia or other psychotic disorders, symptomatically stable on antipsychotic medication, received intramuscular injections of RLAI 25 mg (to a maximum of 50 mg) every 2 weeks for 6 months. **RESULTS:** Of 182 UK patients recruited; 79% had schizophrenia (87% paranoid), 21% other psychotic disorders; 96% had been hospitalised at sometime. Improvement in mean Positive and Negative Syndrome Scale (PANSS) total score was significant at 1 month through to endpoint ($p = 0.0001$). There were significant improvements in PANSS subscales ($p \leq 0.001$), PANSS-Marder subscores ($p \leq 0.0391$), and in Clinical Global Impression-Severity ($p = 0.0001$) at endpoint. Patients reported improvements in: HRQoL ($p < 0.05$), Global Assessment of Functioning ($p = 0.0001$) and patient satisfaction ($p = 0.0001$) at endpoint. The proportion of patients rating RLAI treatment as 'very good' increased from 10% to 40%. 55% (22/40) of patients hospitalised at baseline were discharged by endpoint. **CONCLUSION:** Sustained, significant improvement in symptom control, HRQoL and functioning was seen in stable patients treated with RLAI over 6 months following a switch from previous antipsychotic medications.

[35] **Mathews JR, Barch DM. Emotion responsivity, social cognition, and functional outcome in schizophrenia.** *Abnormal Psychology*. 2010 Feb;119(1):50-9.

Social functioning deficits have long been a defining feature in schizophrenia, but relatively little research has examined how emotion responsivity influences functional outcome in this disorder. The goal of the current study was to begin to elucidate the relationships between emotion responsivity, social cognition, and functional outcome in schizophrenia. Participants were 40 outpatients diagnosed with schizophrenia or schizoaffective disorder according to the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; American Psychiatric Association, 1994) and 40 controls. Each participant completed measures of emotion responsivity, social cognition (both emotion and social perception), and functional outcome. Individuals with schizophrenia demonstrated somewhat reduced emotion responsivity for positive and negative stimuli, as well as deficits in both social cognition and functional outcome, in comparison with controls. Additionally, results indicated that both social perception and emotion responsivity were positively correlated with functional outcome. Importantly, the relationship of emotion responsivity to functional outcome was not mediated by social perception and showed a significant relationship to functional outcome independent of social cognition. This finding suggests that emotion responsivity is an important factor in understanding functional outcome in schizophrenia.

[36] **Medalia A, Thysen J. A comparison of insight into clinical symptoms versus insight into neuro-cognitive symptoms in schizophrenia.** *Schizophrenia Research*. 2010 May;118(1-3):134-9.

BACKGROUND: Schizophrenia is associated with neuropsychological deficits that have been linked to poor functional outcome. To address this problem, pharmacologic and behavioral treatments are being developed for cognitive impairments, but they will not be well utilized if people with schizophrenia do not perceive a need for treatment. **AIMS:** This study compared whether people with schizophrenia have a similar degree of insight into neuro-cognitive symptoms as clinical symptoms, and whether neuro-cognitive and clinical symptoms are similarly related to degree of insight into these two aspects of the illness. **METHOD:** Seventy-one patients with schizophrenia were administered measures of clinical and neuro-cognitive status as well as clinician rated measures of insight into clinical and neuro-cognitive symptoms. **RESULTS:** Patients had significantly less insight into their neuro-cognitive symptoms than their clinical symptoms. On average, patients had good insight into clinical symptoms and partial insight into neuro-cognitive symptoms. Neuropsychological variables were related to insight into clinical symptoms, but not insight into neuro-cognition. Clinical variables were not significantly related to either type of insight. **CONCLUSIONS:** Insight is not a unitary concept and the differences between awareness of neuro-cognition

and awareness of clinical symptoms suggest that they have to be addressed separately in treatment. Specific education about cognitive symptoms may be necessary to improve awareness of this aspect of the schizophrenia.

[37] Milev P, Ho BC, Arndt S, Andreasen NC. **Predictive values of neurocognition and negative symptoms on functional outcome in schizophrenia: a longitudinal first-episode study with 7-Year follow-up.** *American Journal of Psychiatry.* 2005 Mar;162(3):495-506.

Objective: The relationship between cognition and outcome in people with schizophrenia has been established in studies that, for the most part, examined chronic patients and were cross-sectional in design. The purpose of this study was to analyze the relationships between neurocognitive variables assessed at illness onset and functional outcome in a longitudinal design. An additional area of interest was whether the severity of negative symptoms would predict outcome independently from neurocognitive variables or whether there would be an overlap in their predictive power. Method: The authors administered a comprehensive cognitive battery and clinical assessments to 99 subjects who were in their first episode of illness and analyzed the relationship of cognition and symptom severity at intake with community outcome after an average follow-up period of 7 years. Results: Verbal memory, processing speed and attention, and the severity of negative symptoms at intake were related to subsequent outcome. Global psychosocial functioning was predicted by negative symptoms and attention. Verbal memory was the significant predictor of the degree of impairment in recreational activities. Impairment in relationships was predicted by negative symptoms and memory, whereas attention and negative symptoms were predictive of work performance. There was an overlap in the variance in outcome explained by cognitive variables and negative symptoms. Conclusions: Verbal memory and processing speed and attention are potential targets for psychosocial interventions to improve outcome. Results from cross-sectional or chronic patient studies do not necessarily correspond to the findings of this prospective first-episode study in which cognition appears to explain less of the variance in outcome.

[38] Nuss P, Tessier C. **Antipsychotic medication, functional outcome and quality of life in schizophrenia: focus on amisulpride.** *Current Medical Research and Opinion.* 2010 Apr;26(4):787-801.

BACKGROUND: Restoration of quality of life is considered as the ultimate treatment goal in the management of schizophrenia and is important for destigmatising the disease. However, few studies, including the most recent, have collected quality of life data prospectively or evaluated the relationship of treatment with quality of life. SCOPE: Amisulpride is an atypical antipsychotic drug which has been described to have potency in improving negative symptoms of chronic schizophrenia and whose use is associated with a relatively low rate of emergence of extrapyramidal side-effects. These properties may contribute to a beneficial effect on quality of life. A systematic literature review of functional outcome in clinical trials with amisulpride was performed in order to assess the effect of this drug on quality of life and social functioning in patients. The Medline database was searched for all studies of amisulpride in schizophrenia which reported functional and quality of life outcomes up until 30 September 2009. FINDINGS: Only one dedicated study assessing functional outcome or quality of life as a primary outcome criterion was identified. This demonstrated significant improvement in subjective well-being in patients with schizophrenia initiating treatment with amisulpride, and a correlation between this improvement and amelioration of psychopathology. In addition, functional outcome rating scales were used as secondary outcome measures in eight randomised clinical trials, and two naturalistic observational studies. Amisulpride treatment was associated with improvement in functional outcome, with effect sizes that were comparable between studies. Improvements in functional outcome are consistently greater than those observed in patients treated with haloperidol and similar in magnitude to those seen with three other atypical antipsychotics, namely olanzapine, ziprasidone and risperidone. A patient-reported outcome measure was used in only one comparative study, and demonstrated perception of a superior benefit with amisulpride compared to haloperidol. These findings could to some extent be replicated in several large naturalistic studies under standard conditions of care. CONCLUSIONS: The data from studies on functional outcome and subjective well-being provide consistent information supporting the use of amisulpride for the treatment of schizophrenia in order to improve social functioning, integration into the community and autonomy, which are critical for the overall quality of life of patients with schizophrenia.

[39] Ojeda N, Pena J, Sanchez P, Elizagarate E, Ezcurra J. **Processing speed mediates the relationship between verbal memory, verbal fluency, and functional outcome in chronic schizophrenia.** *Schizophrenia Research.* 2008 Apr;101(1-3):225-33.

Verbal fluency and verbal memory have been reported to be diminished in patients with schizophrenia. These deficits could partially predict functional disability in this pathology. However, processing speed often mediates the relationship among cognitive processes in the disorder. Our goal was to analyse the influence of processing speed as mediator of the relation between verbal fluency-verbal memory and functional disability in chronic schizophrenia. We examined 90 hospitalized patients and 30 healthy controls (matched for gender, age and years of education). The neuropsychological battery included

tests for verbal fluency, verbal memory, motor speed and processing speed. Outcome measures included Disability Assessment Schedule (DAS-WHO) and number of hospitalizations (NH). Results confirmed chronicity on clinical symptoms (PANSS total $X=48.94+14.97$ PANSS negative $X=27.81+10.18$, PANSS positive $X=23.51+10.81$) and impairment on functional disability (DAS-WHO $X=13.62+4.28$). As expected, verbal fluency was severely impaired in patients and significantly predicted functional outcome. Immediate and Delayed Verbal Memory were also severely impaired and predicted functional outcome. However, when processing speed was entered in the regression analyses the significance of verbal fluency and verbal memory decreased significantly. Sobel's equation was significant, suggesting full mediation. Our findings suggest that processing speed may be a central factor in the relation between cognitive symptoms and functional outcome in chronic schizophrenia.

[40] **Penadés R, Catalán R, Puig O, Masana G, Pujol N, Navarro V, et al. Executive function needs to be targeted to improve social functioning with Cognitive Remediation Therapy (CRT) in schizophrenia. *Psychiatry Research*. 2010 May;177(1-2):41-5.**

While the role of impaired cognition in accounting for functional outcome in schizophrenia is generally established, the relationship between cognitive and functional change in the context of treatments is far from clear. The current paper tries to identify which cognitive changes lead to improvements in daily functioning among persons with chronic schizophrenia who had current negative symptoms and evidenced neuropsychological impairments. In a previous work, Cognitive Remediation Therapy (CRT) was compared with a control therapy, involving similar length of therapist contact but different targets. At the end of treatment, CRT conferred a benefit to people with schizophrenia in cognition and functioning [Schizophrenia Research, 87 (2006) 323-331]. Subsequently, analyses of covariance (ANCOVA) were conducted with baseline and cognitive change scores as covariates to test whether cognitive change predicted change in functioning. Additionally, statistical tests to establish the mediation path with significant variables were performed. Although verbal memory, but not executive functioning, was associated with functioning at baseline, it was the improvement in executive functioning that predicted improved daily functioning. Verbal memory played a mediator role in the change process. Consequently, in order to improve daily functioning with CRT, executive function still needs to be targeted in despite of multiple cognitive impairments being present.

[41] **Philips ES, Barrio C, Brekke JS. The impact of ethnicity on prospective functional outcomes from community-based psychosocial rehabilitation for persons with schizophrenia. *Journal of Community Psychology*. 2001 Nov;29(6):657-73.**

Ethnicity was examined for its relationship to prospective functional outcomes from community-based psychosocial rehabilitation (CPSR) for schizophrenia. 98 Ss (25 female and 73 males aged 18-60 yrs; mean age 33 yrs) participated. Ss diagnosed with schizophrenia or schizoaffective disorder who were admitted to 2 CPSR programs. Data on hospitalization, independent living, social, and work functioning were collected every 6 mo for a period of 3 yrs. The results using hierarchical linear modeling revealed significant differences among non-minorities, African Americans (AAs), and Latinos (Ls) in rehabilitative change over time in the domains of work and social functioning. Non-minorities achieved the greatest gains in both social and work functioning. AAs showed little change in social functioning, but showed a decline in work functioning. In the domain of work, Ls deteriorated more than AAs, and this was most notable for Latino males. There were no cross-ethnic differences in independent living or hospitalization outcomes. There is important variation among different ethnic groups in their response to psychosocial rehabilitation. Implications are discussed in terms of the need for culturally relevant rehabilitation methods, and for research on cultural constructs.

[42] **Rassovsky Y, Horan WP, Lee J, Sergi MJ, Green MF. Pathways between early visual processing and functional outcome in schizophrenia. *Psychological Medicine*. 2010 May;19:1-11.**

BACKGROUND: Early visual processing deficits are reliably detected in schizophrenia and show relationships to poor real-world functioning. However, the nature of this relationship is complex. Theoretical models and recent studies using statistical modeling approaches suggest that multiple intervening factors are involved. We previously reported that a direct and significant association between visual processing and functional status was mediated by a measure of social perception. The present study examined the contribution of negative symptoms to this model. **Method** We employed structural equation modeling (sem) to test several models of outcome, using data from 174 schizophrenia out-patients. Specifically, we examined the direct and indirect relative contributions of early visual processing, social perception and negative symptoms to functional outcome. **RESULTS:** First, we found that, similar to social perception, a measure of negative symptoms mediated the association between visual information processing and functional status. Second, we found that the inclusion of negative symptoms substantially enhanced the explanatory power of the model. Notably, it was the experiential aspect of negative symptoms (avolition and anhedonia) more than the expressive aspect (affective flattening and alogia) that accounted for

significant variance in functional outcome, especially in the social component of the construct of functional outcome. **CONCLUSIONS:** Social perception and negative symptoms play relevant roles in functional impairment in schizophrenia. Both social perception and negative symptoms statistically mediate the connection between visual processing and functional outcome. However, given the lack of association between social perception and negative symptoms, these constructs appear to have an impact on functioning through separate pathways.

[43] **Remington G, Foussias G, Agid O. Progress in defining optimal treatment outcome in schizophrenia. *CNS Drugs*. 2010 Jan;24(1):9-20.**

Historically, schizophrenia has been associated with early-onset, persistent symptoms, and progressive decline accompanied by poor functional recovery. The advent of effective drugs in the 1950s improved symptom control, at least from the standpoint of positive features (e.g. hallucinations, delusions). However, even here the response was limited and efficacy in other symptom domains (cognitive, deficit/negative) was minimal. With clozapine as the prototype, the second-generation antipsychotics arrived in the 1990s with claims of improved tolerability, as well as greater and broader clinical efficacy, all of which was to translate to gains in functional outcome and quality of life. The capacity of these drugs to effect such changes has since been tempered, but it remains that the research and hope generated served as an impetus to redefine outcomes. A medical-based model, centred on pharmacotherapy and symptom resolution, has given way to a re-conceptualization of schizophrenia and treatment goals. There is a clearer distinction between clinical and functional outcomes, and, with this, greater attention has been given to these other symptom domains that curtail improvement in the latter. At the same time, a concerted shift to shared decision making has underscored quality-of-life issues that benefit from, but cannot be guaranteed by, either clinical or functional improvement. To this end, the field has now embraced a recovery model that is seen as a process, multidimensional and individualized, rather than dichotomous and symptom driven.

[44] **Revheim N, Medalia A. The independent living scales as a measure of functional outcome for schizophrenia. *Psychiatric Services*. 2004 Sep;55(9):1052-4.**

The Independent Living Scales (ILS) measures cognitive skills required for independent living and is intended to provide guidelines for appropriate supervision requirements for persons in residential placement. To assess the validity of the ILS among persons with schizophrenia, the instrument was administered to 162 individuals with schizophrenia who were living in three gradations of care: maximum supervision, moderate supervision, and minimal supervision. Scores on the ILS differed significantly across the three levels of care, whereas scores on the Global Assessment of Functioning (GAF) that were provided by clinicians discriminated only two levels of care. The ILS can be used among patients with schizophrenia to measure cognition as it affects functional outcome.

[45] **Schennach-Wolff R, Jäger M, Seemüller F, Obermeier M, Messer T, Laux G, et al. Defining and predicting functional outcome in schizophrenia and schizophrenia spectrum disorders. *Schizophrenia Research*. 2009 Sep;113(2-3):210-7.**

BACKGROUND: To assess criteria and to identify predictive factors for functional outcome. The criteria should cover all domains proposed by the Remission in Schizophrenia Working Group. **METHOD:** PANSS ratings were used to evaluate the symptomatic treatment outcome of 262 inpatients with schizophrenia spectrum disorders within a naturalistic multicenter trial. Functional remission was defined as a GAF score >61 (Global Assessment of Functioning Scale), SOFAS score >61 (Social and Occupational Functioning Scale) and a SF-36 mental health subscore >40 (Medical Outcomes Study-Short Form Health Survey). Multivariate logistic regression and CART analyses were used to determine valid clinical and sociodemographic predictors. **RESULTS:** In total, 52 patients (20%) fulfilled the criteria for functional remission, 125 patients (48%) achieved symptomatic resolution and when criteria for functional remission and symptomatic resolution were combined 33 patients (13%) achieved complete remission. Younger age, employment, a shorter duration of illness, a shorter length of current episode, less suicidality, and a lower PANSS negative and global subscore at admission were predictive of functional remission. The regression model showed a predictive value of more than 80%. **CONCLUSIONS:** A significant association was found between functional remission and symptomatic resolution, indicating reasonable validity of the proposed definition for functional outcome. The revealed predictors for functional treatment outcome emphasize the need for psychosocial and vocational rehabilitation in schizophrenic patients.

[46] **Schwarzkopf SB, Crilly JF, Silverstein SM. Therapeutic synergism: optimal pharmacotherapy and psychiatric rehabilitation to enhance functional outcome in schizophrenia. *Psychiatric Rehabilitation Skills*. 1999;3(1)Spr:124-47.**

Despite recent advances in the pharmacologic treatment and psychiatric rehabilitation of people with chronic schizophrenia, there exist serious impediments to the maximal utilization of these techniques. Standard antipsychotic treatment is effective in

controlling acute exacerbations of schizophrenia, reducing positive psychotic symptoms, and reducing the frequency of relapse. In contrast, psychiatric rehabilitation is effective in ameliorating some of the negative symptoms, behavioral dysfunction, and cognitive dysfunction in even the most severely affected patients with this disorder. Given the lack of relationship between these clusters of symptoms, it is imperative that these approaches be optimized in the delivery of care to people with schizophrenia.

[47] Shrivastava A, Johnston M, Shah N, Bureau Y. Redefining outcome measures in schizophrenia: integrating social and clinical parameters. *Current Opinion in Psychiatry*. 2010 Mar;23(2):120-6.

PURPOSE OF REVIEW: Schizophrenia is a complex neurobehavioral disorder for which there are many promising new treatments. There is, however, a discrepancy in outcome measure reports when they are obtained from patients, relatives, caregivers, or professionals, making it difficult to determine the level of recovery. This lack of agreement may result from limitations of the measurement tools themselves, which are not comprehensive and may be measuring different aspects of outcome. Alternatively, it could be that the conceptual understanding of outcome and recovery require development. **RECENT FINDINGS:** For various reasons, patients assessed as 'recovered' remain excluded from mainstream society. We are of the opinion that present outcome measures do not capture real-life situations. We propose that the concept of recovery be carefully defined and the gold standard of outcome should incorporate social and clinical parameters. We attempt to redefine recovery. Patients who have shown clinical improvement do not necessarily do well in everyday situations even though there is obvious clinical improvement. Therefore, it has been repeatedly argued that a consensus of recovery should be determined and that routine clinical practice should then adapt to the agreed criteria. **SUMMARY:** We argue that the outcome measures should be multidimensional and consist of at least two parameters: clinical remission and social outcome.

[48] Silverstein SM, Spaulding WD, Menditto AA, Savitz A, Liberman RP, Berten S, Starobin H. Attention shaping: a reward-based learning method to enhance skills training outcomes in schizophrenia. *Schizophrenia Bulletin*. 2009 Jan;35(1):222-32.

Disturbances in sustained attention commonly interfere with the ability of persons with schizophrenia to benefit from evidence-based psychosocial treatments. Cognitive remediation interventions have thus far demonstrated minimal effects on attention, as have medications. There is thus a gap between the existence of effective psychosocial treatments and patients' ability to effectively engage in and benefit from them. We report on the results of a multisite study of attention shaping (AS), a behavioral intervention for improving attentiveness and learning of social skills among highly distractible schizophrenia patients. Patients with chronic schizophrenia who were refractory to skills training were assigned to receive either the UCLA Basic Conversation Skills Module (BCSM) augmented with AS (n = 47) or in the standard format (n = 35). AS, a reward-based learning procedure, was employed to facilitate patients' meeting clearly defined and individualized attentiveness and participation goals during each session of a social skills training group. Primary outcome measures were observational ratings of attentiveness in each session and pre- and post-BCSM ratings of social skill and symptoms. Patients receiving social skills training augmented with AS demonstrated significantly more attentiveness in group sessions and higher levels of skill acquisition; moreover, significant relationships were found between changes in attentiveness and amount of skills acquired. Changes in attentiveness were unrelated to level or change in antipsychotic medication dose. AS is an effective example of supported cognition, in that cognitive abilities are improved within the environmental context where the patient is experiencing difficulty, leading to gains in both attention and functional outcome.

[49] Tabarés-Seisdedos R, Balanzá-Martínez V, Sánchez-Moreno J, Martínez-Aran A, Salazar-Fraile J, Selva-Vera G, et al. Neurocognitive and clinical predictors of functional outcome in patients with schizophrenia and bipolar I disorder at one-year follow-up. *Journal of Affective Disorders*. 2008 Aug;109(3):286-99.

Objective: Many studies have reported that cognitive ability may be predictive of the functional outcome for patients with schizophrenia. However, no study has prospectively examined these aspects in schizophrenia and bipolar disorders simultaneously. The present study attempted to analyze if neurocognition and clinical status predicts the real-life functioning for patients with schizophrenia or bipolar I disorder, using a longitudinal design. **Method:** Forty-seven schizophrenic and 43 bipolar I outpatients were assessed twice with a neurocognitive battery (Executive Functions, Working Memory, Verbal Memory, Visual Memory, Visual-Motor Processing, Vigilance, Vocabulary and Motor Speed tasks), clinical scales (the Positive and Negative Symptom Scale, the Hamilton Rating Scale for Depression and the Clinician Administered Rating Scale for Mania) and functional outcome measures (the Global Assessment of Functioning Scale, the WHO's Disability Assessment Scale and occupational adaptation level) over a one-year follow-up period. The cognitive performance of the patients was compared, at baseline and one year later, with that of 25 healthy subjects. **Results:** In schizophrenia patients, global functioning

one year later was predicted by a composite neurocognitive score and three specific domain (verbal memory, motor speed, vocabulary). Symptoms appeared to explain less of the variance in functioning. In bipolar I patients, changes in the composite neurocognitive score over one year, deficits in the visual/motor processing domain, severity of symptoms (psychotic, excitatory and affective symptoms) and premorbid adjustment at the first assessment were the variables that better predicted functioning or disability changes over follow-up period. Conclusions: Although the relationships between cognition, symptoms and functional capacity differ for schizophrenia or bipolar I patients, neuropsychological performance seems to be a principal longitudinal predictor of functioning in both disorders. Baseline neurocognition and cognitive changes over 12 months predicted changes in functioning over the same period, but only in bipolar I patients. These cognitive domains could be potential neurocognitive endophenotypes (endophenocognotypes) with regard to bipolar I disorder.

[50] Tso IF, Grove TB, Taylor SF. Emotional experience predicts social adjustment independent of neurocognition and social cognition in schizophrenia. *Schizophrenia Research*. 2010 Jan;122(1-3):156-63.

BACKGROUND: Emotional abnormalities are prominent features of schizophrenia. While the capacity for emotions is essential to social adaptation, little is known about the role of emotional experience in the social dysfunction observed in schizophrenia. OBJECTIVE: This study examined the contribution of emotional experience, neurocognition, and social cognition to functional outcome in schizophrenia. METHOD: Self-reported emotional experience (anhedonia, affect intensity, and emotion frequency) was assessed in 33 stable schizophrenic/schizoaffective patients and 33 healthy controls. Symptoms, neurocognition, social cognition, and functional outcome were also assessed. RESULTS: Patients and controls exhibited good internal reliability on all self-report scales, except for negative affect intensity. Patients reported equally intense but less frequent positive emotions, more intense and frequent negative emotions, and more anhedonia. Results of hierarchical regression analyses showed that emotional experience accounted for significant amounts of variance of social adjustment independent of neurocognition and social cognition. CONCLUSION: These data show that emotional experience can be reliably assessed and is an important determinant of functional outcome in schizophrenia.

[51] van Winkel R, Myin-Germeys I, De Hert M, Delespaul P, Peuskens J, van Os J. The association between cognition and functional outcome in first-episode patients with schizophrenia: mystery resolved? *Acta Psychiatrica Scandinavica*. 2007 Aug;116(2):119-24.

OBJECTIVE: The presence of a prospective association between cognition and functional outcome in first episode patients with schizophrenia is much debated. METHOD: Associations between Intelligence Quotient (IQ) measures and functional outcome were assessed at the first hospitalization and after 10 years follow-up. RESULTS: Functional outcome was associated with estimated premorbid IQ and IQ at 10-year follow-up, but not with IQ assessed at first hospitalization. CONCLUSION: The presence of a prospective as well as a cross-sectional relationship of the global cognitive measure IQ with 10-year functional outcome could be established. However, assessing associations between cognitive measures assessed at first hospitalization and subsequent functional outcome, can give inconclusive results due to non-uniform intellectual deterioration from premorbid level in the period preceding the first hospitalization.

[52] Velligan DI, Diamond P, Mueller J, Li X, Maples N, Wang M, Miller AL. The short-term impact of generic versus individualized environmental supports on functional outcomes and target behaviors in schizophrenia. *Psychiatry Research*. 2009 Jul;168(2):94-101.

We examined the short-term efficacy of two treatments using environmental supports (e.g. signs, alarms, pill containers, and checklists) to improve target behaviors in individuals with schizophrenia. 120 participants were randomized into one of the following three treatment groups: 1) Cognitive Adaptation Training (CAT; a manual-driven set of environmental supports customized to individual cognitive impairments and behaviors, and established and maintained in participants' homes on weekly visits; 2) Generic Environmental Supports (GES; a generic set of supports given to patients at a routine clinic visit and replaced on a monthly basis); and 3) treatment as usual (TAU; standard follow-up provided by a community mental health center). Global level of functional outcome and target behaviors, including orientation, grooming and hygiene, and medication adherence, were assessed at baseline and 3 months. Results of an analysis of covariance indicated that patients in both CAT and GES had better scores on global functional outcome at 3 months than those in TAU. Results of Chi Square analyses indicated that patients in CAT were more likely to improve on target behaviors, including orientation, hygiene, and medication adherence, than those in GES. Irrespective of treatment group, individuals who were high utilizers of environmental supports were more likely to improve on target behaviors than individuals who were low utilizers of supports.

[53] Velligan DI, Alphs L, Lancaster S, Morlock R, Mintz J. Association between changes on the Negative Symptom

Assessment scale (NSA-16) and measures of functional outcome in schizophrenia. *Psychiatry Research*. 2009 Sep;169(2):97-100.

We examined whether changes in negative symptoms, as measured by scores on the 16-item Negative Symptom Assessment scale (NSA-16), were associated with changes in functional outcome. A group of 125 stable outpatients with schizophrenia were assessed at baseline and at 6 months using the NSA-16, the Brief Psychiatric Rating Scale, and multiple measures of functional outcome. Baseline adjusted regression coefficients indicated moderate correlations between negative symptoms and functional outcomes when baseline values of both variables were controlled. Results were nearly identical when we controlled for positive symptoms. Cross-lag panel correlations and Structural Equation Modeling were used to examine whether changes in negative symptoms drove changes in functional outcomes over time. Results indicated that negative symptoms drove the changes in the Social and Occupational Functioning Scale (SOFAS) rather than the reverse. Measures of Quality of Life and measures of negative symptoms may be assessing overlapping constructs or changes in both may be driven by a third variable. Negative symptoms were unrelated over time to scores on a performance-based measure of functional capacity. This study indicates that the relationship between negative symptom change and the change in functional outcomes is complex, and points to potential issues in selection of assessments.

[54] Ventura J, Helleman GS, Thames AD, Koellner V, Nuechterlein KH. Symptoms as mediators of the relationship between neurocognition and functional outcome in schizophrenia: a meta-analysis. *Schizophrenia Research*. 2009 Sep;113(2-3):189-99.

BACKGROUND: Neurocognitive functioning in schizophrenia has received considerable attention because of its robust prediction of functional outcome. Psychiatric symptoms, in particular negative symptoms, have also been shown to predict functional outcome, but have garnered much less attention. The high degree of intercorrelation among all of these variables leaves unclear whether neurocognition has a direct effect on functional outcome or whether that relationship to functional outcome is partially mediated by symptoms. **METHODS:** A meta-analysis of 73 published English language studies (total $n=6519$) was conducted to determine the magnitude of the relationship between neurocognition and symptoms, and between symptoms and functional outcome. A model was tested in which symptoms mediate the relationship between neurocognition and functional outcome. Functional outcome involved measures of social relationships, school and work functioning, and laboratory assessments of social skill. **RESULTS:** Although negative symptoms were found to be significantly related to neurocognitive functioning ($p<.01$) positive symptoms were not ($p=.97$). The relationship was moderate for negative symptoms ($r=-.24$, $n=4757$, 53 studies), but positive symptoms were not at all related to neurocognition ($r=.00$, $n=1297$, 25 studies). Negative symptoms were significantly correlated with functional outcome ($r=-.42$, $p<.01$), and again the correlation was higher than for positive symptoms ($r=-.03$, $p=.55$). Furthermore, our findings support a model in which negative symptoms significantly mediate the relationship between neurocognition and functional outcome (Sobel test $p<.01$). **CONCLUSIONS:** Although neurocognition and negative symptoms are both predictors of functional outcome, negative symptoms might at least partially mediate the relationship between neurocognition and outcome.

[55] Williams LM, Whitford TJ, Flynn G, Wong W, Liddell BJ, Silverstein S, et al. General and social cognition in first episode schizophrenia: identification of separable factors and prediction of functional outcome using the IntegNeuro test battery. *Schizophr Res*. 2008 Feb;99(1-3):182-91.

OBJECTIVE: It is increasingly recognized that cognitive assessments, unlike symptom ratings, provide a reliable predictor of functional outcome in schizophrenia. This study evaluated the utility of the 'IntegNeuro' computerized test battery for assessing cognition in first episode schizophrenia. We determined the presence of separable factors of general and social cognition, their equivalence to the consensus domains identified by the NIMH MATRICS project, and their effectiveness in predicting real world functional outcomes. **METHOD:** Fifty six first episode schizophrenia (FES) patients and 112 matched healthy controls were assessed on the touchscreen-based 'IntegNeuro' cognitive test battery and FES patients for social functioning (SOFAS) and quality of life (WHOQOL-BREF). **RESULTS:** Principal components analysis identified i) six factors corresponding to MATRICS domains of general cognition ('Information Processing Speed', 'Verbal Recall', 'Working Memory Capacity', 'Sustained Attention/Vigilance', 'Verbal Processing', 'Executive Function'), ii) an 'Emotional Intelligence' factor corresponding to the MATRICS social cognition domain, and iii) an additional 'Sensori-Motor Function' factor of general cognition and 'Negativity' factor of social cognition. Patients showed impairments relative to controls across all factors, but especially for Working Memory Capacity, followed by Verbal Memory, Sustained Attention/Vigilance and Negativity. These factors strongly predicted poorer social functioning in FES, along with poorer quality of life in psychological, social, and health satisfaction facets. **CONCLUSION:** The IntegNeuro battery has utility for assessing separable domains of general and social cognition in FES, which are predictive of real world outcomes. Thus, it may be appropriate for clinical application, including

in multi-center trials targeting new treatments for cognition in schizophrenia.

[56] Wynn JK, Sugar C, Horan WP, Kern R, Green MF. Mismatch negativity, social cognition, and functioning in schizophrenia patients. *Biological Psychiatry*. 2010 May;67(10):940-7.

BACKGROUND : Cognition and social cognition have been found to influence functional outcome in schizophrenia patients. However, little is known about the underlying neural substrates that are associated with social cognition or daily functioning. Prior studies found associations between mismatch negativity (MMN), an ception and theory of mind), and four domains of functioning (work, independent living, social networks, and family networks) in 33 schizophrenia patients and 42 demographically comparable healthy control subjects. RESULTS : Schizophrenia patients exhibited reduced MMN activity at frontocentral amily networks) and with better social perception. CONCLUSIONS : These results suggest that MMN activity is more closely tied to some outcome domains (work and independent living) than others. Mismatch negativity has been previously shown to be associated with basic cognition and functional outcome in schizophrenia, but these findings are the first, to our knowledge, to show MMN associations with social cognition. These results are consistent with cascade models of information processing in which deficits in early perceptual processing have a downstream impact on higher order social cognition and community functioning.

Rapport final - annexe 5

Colloque international handicap psychique, fonctionnement en situation et rétablissement mental

Lundi 3 mai et mardi 4 mai 2010.

Ecole Normale Supérieure, 45 rue d'Ulm, Paris Ve

PROGRAMME

Nombre de travaux se préoccupent de la persistance d'un fossé entre les progrès thérapeutiques et la réinsertion sociale des sujets atteints de troubles psychiques sévères. En France, cette problématique a été renouvelée depuis la loi du 11 février 2005 et l'émergence de la notion de "handicap psychique". L'insertion professionnelle est un enjeu décisif de cette visée d'autonomie et de vie sociale au-delà des soins, mais les stratégies de retour à l'emploi se heurtent à l'extrême diversité des situations et à la complexité de l'évaluation, de multiples facteurs échappant à une approche purement médicale. Ces préoccupations peuvent être confrontées avec fécondité aux avancées de la recherche internationale mettant l'accent sur les notions de retentissement fonctionnel [*functional outcome*] et de rétablissement [*recovery*] en tant qu'appropriation d'un nouvel équilibre intégrant la maladie et pouvant comporter des potentialités inattendues –, ainsi que sur la nécessité de mieux prendre en compte le « fonctionnement en situation » [*Real-World Functioning*]. Ce colloque est organisé autour d'échanges avec des spécialistes internationaux dont l'apport a été décisif pour l'émergence de ce nouveau paradigme dans l'abord des troubles psychiques, source de pratiques innovantes encore peu connues en France.

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bernard.pachoud@gmail.com

<http://psychother.fr/spip.php?article108>

<http://www.handicap-psy.fr/>

Inscription : L'accès au colloque est libre

Nous vous remercions cependant de bien vouloir nous faire part de votre inscription par un mail (le nombre de places étant limité).

Programme

Ouverture (3 mai, 9h) : Marie-Anne Montchamp (Députée du Val de Marne, Ancien ministre, Présidente de l'Agence Entreprises & Handicap)

Session 1 : (3 mai, 9h30-12h30)

Emergence des concepts de handicap psychique et de retentissement fonctionnel

Anne Lovell (INSERM, CERMES3-CESAMES, Paris)

Dr Denis Leguay (Centre Hospitalier d'Angers)

Carole Peintre (CEDIAS, Paris)

Session 2 : (3 mai, 14h30-17h30)

Handicap et rétablissement

Pr Larry Davidson (Yale University, Etats-Unis)

Pr Hélène Provencher (Université Laval, Canada)

Dr Mike Slade (King's College, Londres)

Session 3 : (4 mai, 9h30-12h30)

Fonctionnement en situation [Real-World Functioning] et insertion

Pr Christopher Bowie (Queen's University, Canada)

Pr Christoph Lauber (University of Liverpool, G.-B.)

Pr Jean-Marie Danion (Centre Hospitalo-Universitaire de Strasbourg)

Session 4 : (4 mai, 14h30-16h30)

Remédiation, réhabilitation et insertion

Pr Nicolas Franck (Université Claude Bernard de Lyon et Institut des sciences cognitives)

Pr Paul H. Lysaker (Indiana University, Etats-Unis)

Table ronde de clôture (4 mai, 16h45)

Lundi 3 Mai 2010

9h : Ouverture : Marie-Anne Montchamp (Députée du Val de Marne, Ancien ministre, Présidente de l'Agence Entreprises & Handicap)

9h30-12h30 : Session 1

Emergence des concepts de handicap psychique et de retentissement fonctionnel

The emergence of the concepts of mental/psychic handicap and functional outcome

Président de séance : Pierre-Henri Castel

Discutant : Pr Christine Passerieux

Anne Lovell (Directeur de recherche INSERM, CERMES3-CESAMES, Paris)

Work and the emergence of the French concept of “handicap psychique”
 Activité professionnelle et émergence du concept français de “handicap psychique”

Dr Denis Leguay (Psychiatre des Hôpitaux, chef de secteur, Centre Hospitalier d'Angers, Président de l'Association Alpha)

Problématique française de l'insertion professionnelle des personnes présentant un handicap psychique
 French approach of the vocational integration of persons with a psychic disability

Carole Peintre (Responsable du service Etudes et Recherche, CEDIAS – CREAHI Ile-de-France, Paris)

Une évaluation partagée pour mieux accompagner les parcours des personnes
 A shared assessment to improve the support to the courses of the persons

14h30-17h30 : Session 2
Handicap et rétablissement
Disability and recovery

Président de séance : Dr Elisabeth Giraud Baro
 Discutant : Tim Greacen

Pr Larry Davidson (Professor of Psychiatry, Director of the Program for Recovery and Community Health, Yale University)

Recovery as an everyday phenomenon: An empirical phenomenological approach
 Le rétablissement, un phénomène quotidien : une approche phénoménologique empirique

Pr Hélène Provencher (Professeur, Faculté des sciences infirmières, Université Laval, Canada)

Le rétablissement : à la recherche de la santé mentale perdue
 Recovery: In search of the lost mental health

Dr Mike Slade (Reader in Health Services Research, Institute of Psychiatry, King's College London)

How can mental health services support personal recovery ?
 Comment les services de santé mentale peuvent-ils soutenir le rétablissement personnel ?

Mardi 4 mai 2010

9h30-12h30 : Session 3
Fonctionnement en situation [Real-World Functioning] et insertion
Real-World Functioning and social integration

Président de séance : Dr Arnaud Plagnol

Discutants : Pr George Sz mukler, Dr François Ménard

Pr Christopher Bowie (Departments of Psychology and Psychiatry, Queen's University, Canada)

Prediction and treatment of real-world functional impairments in schizophrenia

Prédiction et traitement des altérations du "fonctionnement en situation" dans la schizophrénie

Pr Christoph Lauber (Professor of Psychiatry, University of Liverpool)

Supported employment and vocational outcome in severe mental illnesses

Le soutien à l'emploi et le devenir professionnel dans les pathologies mentales sévères

Pr Jean-Marie Danion (Professeur de Psychiatrie, Centre Hospitalo-Universitaire de Strasbourg)

Handicap psychique et reconnaissance mutuelle

Psychic disability and mutual recognition

14h30-16h30 : Session 4

Remédiation, réhabilitation et insertion

Rehabilitation and social integration

Président de séance : Dr Philippe Clery-Melin

Discutant : Pr Patrice Boyer

Pr Nicolas Franck (Professeur de Psychiatrie, Université Claude Bernard & CHU de Lyon, Institut des Sciences Cognitives)

Apport de la remédiation cognitive à la réinsertion des personnes souffrant de handicap psychique

Cognitive rehabilitation and vocational integration of persons with a psychic disability

Pr Paul H. Lysaker (Indiana University School of Medicine, Indianapolis)

Sense of self, rehabilitation and recovery from schizophrenia

Sentiment de soi, réhabilitation et rétablissement dans la schizophrénie

16h45 Table ronde de clôture / Panel discussion

Dr Pascal Cacot, Dr Bernard Pachoud et les intervenants du colloque.

Résumés/ Abstracts

Session 1 : (Lundi 3 mai, 9h30-12h30)

Emergence des concepts de handicap psychique et de retentissement fonctionnel The emergence of the concepts of mental/psychic handicap and functional outcome

Anne Lovell (Directrice de Recherche à l'INSERM, CERMES3-CESAMES, Paris)

Work and the emergence of the French concept of “handicap psychique”

This paper presents the shifting position of work in the way French psychiatry has approached the rehabilitation of persons with severe mental illness. For most of the last 50 years, work constituted the major goal of social re-integration for people with severe mental illnesses. The latter, however, were treated not as a distinct group, but as belonging to the general population of *handicapés*. As the notion of a specifically *psychic* handicap emerged, around 1995, multiple goals and life domains displaced the primacy of work. Nevertheless, work has not completely faded as a rehabilitation goal. Recent interviews reveal work to be more valued by patients and consumers than by clinicians and family members, though in contradictory ways. These will be discussed in terms of recovery and other recent rehabilitation frameworks.

Activité professionnelle et émergence du concept français de “handicap psychique”

Cette intervention présente les changements survenus dans la place accordée à l'activité professionnelle selon la perspective avec laquelle la psychiatrie française a abordé la réhabilitation des personnes souffrant de pathologies mentales sévères. Pendant la plus grande partie des 50 dernières années, le travail a constitué l'objectif principal de la réintégration sociale des personnes atteintes de ces pathologies. Ces personnes n'étaient cependant pas considérées comme formant un groupe spécifique au sein de la population générale des personnes *handicapées*. Alors que la notion d'un handicap spécifiquement *psychique* émergeait, aux alentours de 1995, de nombreux autres objectifs et domaines de la vie ont supplanté la primauté du travail. Cependant, l'activité professionnelle comme objectif de la réhabilitation n'a pas complètement décliné. Une étude récente basée sur des entretiens fait apparaître que le travail revêt davantage d'importance pour les patients et les usagers que pour les membres de leur famille et pour les cliniciens, avec des aspects contradictoires. Ces éléments seront discutés à la lumière du concept de rétablissement et des cadres conceptuels actuels de la réhabilitation.

Dr Denis Leguay (Psychiatre des Hôpitaux, chef de secteur, Centre Hospitalier d'Angers, Président de l'Association Alpha)

Problématique française de l'insertion professionnelle des personnes présentant un handicap psychique

L'emploi des personnes en situation de handicap est, dans notre pays, annoncé comme une priorité de l'action publique. Pour ce qui concerne les personnes présentant des troubles psychiques chroniques, la réalité de l'insertion professionnelle est entravée par toute une série de paramètres concrets et sociétaux qui nous semblent d'abord conditionnés par un obstacle conceptuel, lié à la notion même de handicap psychique. Il s'en déduit probablement que l'amélioration de l'efficacité des actions d'insertion devra passer par une clarification du concept, par son analyse fine, une meilleure description, de meilleures modalités de transmission aux partenaires concernés, et par une compensation plus adaptée. Cette communication s'attachera à défricher brièvement ces différents registres.

The French approach of the vocational integration of persons with a psychic disability

Vocational integration of disabled people is, in our country, presented as a priority by the public authorities. Concerning the persons with chronic mental disorders, vocational outcome is hindered by a series of practical and societal factors that could be primarily depending on a conceptual barrier, related to the very concept of psychic disability. One can argue that in order to improve the efficiency of support to vocational integration, one should first clarify this concept by a more accurate analysis and description, by an improvement of communication with the stakeholders, and by a more appropriate compensation. We will focus in this presentation on these different points.

Carole Peintre (Responsable du service Etudes et Recherche, CEDIAS - CREAI Ile-de-France, Paris)

Une évaluation partagée pour mieux accompagner les parcours des personnes

Même si la nouvelle loi française sur les droits des personnes handicapées (2005-102) n'a pas reconnu ni défini la notion de « handicap psychique », elle a officiellement établi qu'une « altération psychique » pouvait entraîner dans des conditions environnementales déterminées, des limitations d'activités ou des restrictions de participation sociale constituant une situation de handicap d'origine psychique. Ces situations, dans le cadre du droit à compensation du handicap qu'instaure la même loi, sont difficiles à évaluer du fait même des caractéristiques multiples des altérations psychiques, de la variabilité et de l'imprévisibilité des phases des maladies mentales. C'est pour cette raison que la Caisse Nationale de la Solidarité et de l'Autonomie a lancé un appel à projet de recherche ciblé sur ces situations particulières, dans le cadre d'un *programme d'évaluation des besoins des personnes en situation de handicap*. La recherche-action conduite par le CEDIAS a reposé sur une *évaluation partagée*, entre équipes pluridisciplinaires de la maison départementale des personnes handicapées (MDPH) et équipes des secteurs psychiatriques, auprès d'un échantillon de 120 situations de personnes présentant un handicap d'origine psychique, réparties dans 15 départements. L'objectif était de définir les informations pertinentes à recueillir, les acteurs à associer et les étapes du processus d'évaluation à conduire pour définir un plan personnalisé de compensation du handicap le plus adapté aux besoins et attentes spécifiques de ce public.

A shared assessment to improve the support to the courses of the persons

Even if the new French law about the disabled rights (2005-102) has not acknowledged nor defined the notion of "psychic handicap", it has officially established that a "psychic impairment", within specific environmental conditions, could entail some limitations of activities or of social participation which constitute a disability of psychic origin. These situations, within the framework of an entitlement to disability compensation introduced by the same law, are uneasy to assess, due to the numerous features of psychic impairments, to the variability and the unpredictability of the mental illness course. For this reason, the National Fund of Solidarity and Autonomy has called for a research project, focusing on these specific situations, within the framework of an "assessment program of disabled people needs". The research-action led by the CEDIAS was based on a "shared assessment", between the Disabled Departmental House multidisciplinary teams and psychiatric sectors teams, about a sample of 120 situations of persons with a "psychic origin disability", coming from 15 departments. The aim was to determine the relevant information that should be collected, the actors that should be associated, and the stages of the assessment process that should be led in order to define a disability compensation personalized plan most adapted to the needs and specific expectations of this public.

Session 2 : (Lundi 3 mai, 14h30-17h30)

Handicap et rétablissement

Disability and recovery

Pr Larry Davidson (Professor of Psychiatry, Director of the Program for Recovery and Community Health, Yale University School of Medicine, Etats-Unis)

Recovery as an everyday phenomenon: An empirical phenomenological approach

Based on ten years of qualitative data collected through intensive individual narrative interviews with persons living with serious mental illnesses in the U.S. and Western Europe, the presenter will describe various components and processes involved in recovery from and in psychosis. He will emphasize the everyday nature of these processes, and will focus in particular on the key challenges people with psychosis describe and some of their strategies for addressing and overcoming these challenges. Examples of such challenges include becoming re-grounded in the present, gaining a sense of control over some aspects of the illness, rediscovering and reasserting a sense of personal agency, establishing one's efficacy in the world, securing social support, and knitting back together a coherent identity and a positive sense of belonging in the world. Examples of strategies used in addressing these challenges include such everyday activities as washing one's own dishes, talking a dog for a walk, having lunch with a friend, shopping for groceries, and playing with a child. Finally, the presenter will suggest that phenomenological methods in particular may be useful in identifying and appreciating the functions served by such

otherwise 'taken for granted' activities.

Le rétablissement, un phénomène quotidien : une approche phénoménologique empirique

S'appuyant sur dix années de données qualitatives, issues d'entretiens narratifs individuels intensifs avec des personnes vivant avec une pathologie mentale sévère aux Etats-Unis et en Europe de l'Ouest, l'orateur décrira différents processus et composantes à l'œuvre dans le rétablissement à partir et à l'intérieur même d'un trouble psychotique. Il mettra l'accent sur la nature quotidienne de ces processus, et se focalisera en particulier sur les principaux défis que les personnes souffrant de psychose décrivent, et sur quelques-unes de leurs stratégies pour affronter et dépasser ces défis. Comme exemples de ces défis : se ré-ancrer dans le présent, retrouver un sentiment de maîtrise sur certains aspects de la maladie, redécouvrir et se réapproprier un pouvoir d'initiative, restaurer un sentiment d'efficacité sur le monde, s'assurer un soutien social, et remailler une identité cohérente et un sentiment positif d'appartenance au monde. Comme exemples de stratégies utilisées pour affronter ces défis : des activités quotidiennes telles que faire sa vaisselle, sortir un chien en promenade, déjeuner avec un ami, faire ses courses chez l'épicier, ou jouer avec un enfant. Enfin, l'orateur mettra en avant l'utilité des méthodes phénoménologiques pour identifier et évaluer les fonctions mises en jeu dans ces activités considérées comme allant de soi.

Pr Hélène Provencher (Professeur, Faculté des sciences infirmières, Université Laval, Canada)

Le rétablissement : à la recherche de la santé mentale perdue

Des éléments de définition du rétablissement seront proposés à partir d'une vision élargie de la santé mentale ainsi que des repères pour guider l'organisation de services orientés vers le rétablissement. Notes et impressions personnelles sur la promotion du rétablissement au Québec termineront cette présentation en mettant en évidence des enjeux cliniques et organisationnels.

Recovery: In search of the lost mental health

We will propose some defining elements of recovery, based on a broadened conception of mental health, and we will suggest references to guide the organization of recovery-oriented services. Notes and personal impressions about the promotion of recovery in Quebec will end this presentation, highlighting clinical and organizational issues.

Dr Mike Slade (Reader in Health Services Research, Institute of Psychiatry, King's College London)

How can mental health services support personal recovery?

Personal recovery is different from clinical recovery. If the primary goal of mental health services is to support personal recovery, then new approaches to understanding experiences will be needed. The Personal Recovery Framework will be described, which provides a conceptual framework for mental health professionals to understand and increase their contribution to a person's recovery. Fully supporting the recovery of people experiencing psychosis will involve new working practices to make the best use of professional expertise. The implications for relationships, assessment processes, action planning and intervention strategies will be described.

Comment les services de santé mentale peuvent-ils soutenir le rétablissement personnel?

Le rétablissement personnel est différent du rétablissement au sens clinique. Si le but premier des services de santé mentale est de soutenir le rétablissement personnel, alors de nouveaux modes d'approche seront nécessaires pour comprendre l'expérience des personnes. Nous décrivons le Modèle du Rétablissement Personnel : il fournit aux professionnels de la santé mentale un cadre conceptuel permettant de comprendre et de mieux accompagner les personnes vers le rétablissement. Soutenir pleinement le rétablissement de personnes faisant l'expérience de la psychose implique de nouvelles pratiques de travail pour faire le meilleur usage de l'expertise professionnelle. Nous envisagerons les implications relativement aux relations, à l'évaluation des processus et aux stratégies d'intervention.

Session 3 : (Mardi 4 mai, 9h30-12h30)

Fonctionnement en situation [Real-World Functioning] et insertion **Real-World Functioning and social integration**

Pr Christopher Bowie (Departments of Psychology and Psychiatry, Queen's University, Canada)

Prediction and treatment of real-world functional impairments in schizophrenia

The relationship between neurocognitive impairment and functional disability is complex. Our work suggests that the paths from basic neurocognitive dysfunction to disability are largely mediated by performance-based measures of social and adaptive competence. Traditional diagnostic symptoms have small relationships with neurocognition and measures of competence, but do have direct relationships with outcome measures. Thus, they might serve to suppress the deployment of skills in individuals even when they are equipped with cognitive and functional skills. More recently, data from a randomized clinical trial suggest that behavioural treatments of neurocognitive deficits and social skill deficits produce independent improvements. Neurocognitive enhancement therapy improved neurocognition, but these results had limited generalization to everyday behaviours unless paired with supplemental social skills training. These results have direct implications for the staging of behavioural treatments that are aimed at reducing disability and improving functional outcomes in schizophrenia.

Prédiction et traitement des altérations du “fonctionnement en situation” dans la schizophrénie

La relation entre les altérations neurocognitives et le handicap fonctionnel est complexe. Notre travail fait apparaître que les voies qui mènent du dysfonctionnement neurocognitif au handicap sont largement médiatisées par le degré de compétence sociale adaptative mesuré à partir des performances. Les symptômes traditionnels de la maladie ont une relation faible avec les troubles neurocognitifs et les mesures de compétence, mais ont un rapport direct avec les mesures des conséquences fonctionnelles. Ainsi peuvent-ils avoir pour effet de bloquer le déploiement des aptitudes des individus, même lorsque leurs capacités cognitives et fonctionnelles sont présentes. Plus récemment, les données d'une étude clinique randomisée suggèrent que les thérapies comportementales des déficits neurocognitifs d'une part, et des déficits de compétence sociale d'autre part, conduisent de façon indépendante à des améliorations spécifiques. Les techniques de remédiation neurocognitive améliorent la neurocognition, mais ces résultats ont une portée limitée sur les comportements quotidiens, sauf lorsqu'ils sont associés à des entraînements en compétence sociale. Ces résultats ont des implications directes pour l'organisation des thérapies comportementales destinés à réduire le handicap et à améliorer les conséquences fonctionnelles de la schizophrénie.

Pr Jean-Marie Danion (Centre Hospitalo-Universitaire de Strasbourg)

Handicap psychique et reconnaissance mutuelle

Le modèle médical du handicap psychique considère cette forme de handicap comme la conséquence d'un déficit ou d'une incapacité propre aux personnes souffrant de troubles psychiques. Le modèle médico-social le comprend au contraire comme la conséquence des obstacles mis en place par la société à l'encontre de ces personnes. Les implications de ces deux modèles en termes de prise en charge du handicap psychique sont différentes. Selon le modèle médical, la prise en charge vise à améliorer le niveau d'adaptation de la personne, pour ensuite l'orienter vers le milieu correspondant le mieux à ce niveau. Le modèle médico-social du handicap met l'accent sur les déterminants environnementaux et situationnels du handicap, et non sur les incapacités de la personne. Mais s'il est habituel de distinguer ces deux grandes modalités de prise en charge, il n'est pas justifié de les opposer car, dans la réalité quotidienne, elles sont parfaitement complémentaires. L'objectif de cette présentation est de montrer que la notion de reconnaissance mutuelle développée par Axel Honneth est susceptible de rendre compte de cette complémentarité et de la relation cruciale entre handicap et liens sociaux. Cet auteur fournit un cadre théorique général qui permet de dépasser la distinction entre les modèles médical et médico-social du handicap psychique et d'en proposer un modèle intégré, centré sur la restauration des relations intersubjectives et l'intégration sociale des personnes handicapées psychiques.

Psychic disability and mutual recognition

According to the medical model of disability, the psychic disability is the consequence of an impairment or an inability of the persons suffering from mental disorders. According to the social model of disability, it is the

consequence of barriers that are put up by society to these persons. These two models lead to different ways of supporting people with a psychic disability. According to the medical model, the support aims at improving the level of adaptation of these persons, and then to guide them in an appropriate environment. The social model of disability emphasizes the environmental factors of disability rather than the inability of the persons. If one may distinguish between the two models, one should not see them as contradictory for they complement each other in everyday life. This presentation will aim at showing that the notion of mutual recognition, as developed par Axel Honneth, is likely to give an account of this complementarity and of the close relationship between disability and social cohesion. This author provides a conceptual framework that helps to go beyond the distinction between the medical model and the social model of psychic disability, and to propose an integrated model based on the restoration of intersubjective relationships and of the social intergration of people with a psychic disability.

Pr Christoph Lauber (University of Liverpool, Grande-Bretagne)

Supported employment and vocational outcome in severe mental illnesses

Le soutien à l'emploi et le devenir professionnel dans les pathologies mentales sévères

Session 4 : (Mardi 4 mai, 14h30-16h30)
Remédiation, réhabilitation et Insertion
Rehabilitation and social integration

Pr Nicolas Franck (Professeur de Psychiatrie, Université Claude Bernard & CHU de Lyon, Institut des Sciences Cognitives)

Apport de la remédiation cognitive à la réinsertion des personnes souffrant de handicap psychique

Les recherches en neurosciences cognitives réalisées ces dernières années chez des patients souffrant de schizophrénie ont permis non seulement d'améliorer la compréhension de cette maladie, mais également de développer de nouveaux outils thérapeutiques. La remédiation cognitive regroupe un ensemble d'outils destinés à restaurer les processus cognitifs défaillants et occupe une place importante dans le traitement de la schizophrénie - en association à des médicaments et des psychothérapies spécifiques - dans la mesure où elle seule est en mesure d'améliorer de manière efficace l'attention, la mémoire et la capacité à organiser les actions. L'altération profonde de ces fonctions dans la schizophrénie induit un handicap notable pour les patients qu'il est fortement nécessaire de prendre en compte.

Cognitive rehabilitation and vocational integration of persons with a psychic disability

Over the past few years, cognitive neuroscientific research on patients suffering from schizophrenia have led to a better understanding of this pathology and to the development of new therapeutic methods. Cognitive rehabilitation relies on a set of tools aiming at improving the impeded cognitive processes, and play a major role in the treatment of schizophrenia - in combination with drugs and specific psychotherapies – for the reason that it is the only way to improve efficiently attention, memory and executive functions. The severe impairment of these functions in schizophrenic patients involves a genuine disability that should be taken into account.

Pr Paul H. Lysaker (Associate Professor of Clinical Psychology, Department of Psychiatry, Indiana University School of Medicine, Indianapolis)

Sense of self, rehabilitation and recovery from schizophrenia

Many contemporary models of severe mental illnesses such as schizophrenia, frame disability and dysfunction as the result of both biological and social forces. While this approach has provided many useful and helpful insight it runs the risk of neglecting the fact that persons with severe mental illness must interpret and actively make meaning of their own conditions, and that those interpretations may play a key role in any movement toward or away from health. With that in mind, this presentation will explore one such person centered variable which may occur a central place in the process of recovery, namely metacognition or the ability to think about one's thinking and thinking of others. Means for assessing metacognition will be presented. Recent research will be detailed which suggests that metacognition is a key factor to consider when assessing rehabilitation outcome and may itself mediate the effects of neurocognitive deficits on social function. Implications for the development of interventions will be presented and illustrated with case vignettes.

Sentiment de soi, réhabilitation et rétablissement dans la schizophrénie

De nombreux modèles contemporains des pathologies mentales sévères telles que la schizophrénie considèrent le handicap et les dysfonctionnements comme la résultante de composantes à la fois biologiques et sociales. Cette approche a donné lieu à bien des tentatives fécondes de compréhension mais risque de négliger le fait que les personnes atteintes de telles pathologies doivent interpréter et activement donner un sens à leur propre condition, et que ces interprétations peuvent jouer un rôle-clé dans toute amélioration ou détérioration de leur santé. A partir de telles considérations, cet exposé se focalisera sur une variable centrée sur la personne, qui peut prendre une place centrale dans le processus de rétablissement : la métacognition, c'est-à-dire la capacité de réfléchir à sa propre pensée ou à celle d'autrui. Nous présenterons des moyens d'évaluer la métacognition. Les résultats des études récentes seront détaillés, suggérant que la métacognition est un facteur-clé à considérer pour évaluer les résultats de la réhabilitation, et qu'elle peut être un maillon entre les effets des déficits neurocognitifs et la compétence sociale. Les implications de ces résultats quant à la prise en charge seront envisagées et illustrées par des vignettes cliniques.

Appel à projets de recherche 2008

« Handicap psychique, autonomie, vie sociale »

DREES-MiRe et CNSA, en collaboration avec la DGAS, le GIS-IRESP et l'UNAFAM

Rapport final – Annexe 6

Articles publiés liés à l'action de recherche IPS

MATRAT, V., & GRENIER, K. (2009). Real-World functioning et insertion : une nouvelle perspective ? *La Lettre du Psychiatre*, V(6), 126-129;

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PACHOUD B. (2009), "Remarques sur les déterminants de la réinsertion professionnelle des personnes en situation de handicap psychique", in G. Zribi et T. Beulné (eds.), *Les handicaps psychiques. Concepts, approches, pratiques*. (pp 95-106) Rennes, Presses de l'EHESP.

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PACHOUD B., PLAGNOL A., LEPLEGE A. (2010) Outcome, recovery and return to work in severe mental illnesses. *Disability and Rehabilitation*, 32 (12), 1043-1050.

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B. Pachoud. Potentiel de réinsertion professionnelle : une réalité difficile à cerner . Session « Evaluer, compenser, accompagner : un défi pour les professionnels de terrain ».

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6^{ème} réunion nationale SCHIZOSEM. « Intervention précoce dans la schizophrénie: de l'adolescent à l'adulte. » Marseille , le 6 mai 2010.

B. Pachoud. Facteurs de rétablissement de la schizophrénie.

6^{ème} Congrès de REH@b', Les chemins de la réhabilitation, Paris, 3&4 juin 2010

B. Pachoud. Introduction à la notion de rétablissement (recovery). (Symposium sur le rétablissement)

Congrès Français de Psychiatrie. 2^{ème} Edition. Lyon . 27-20 novembre 2010.

B. Pachoud : Données de la littérature sur les déterminants de la réinsertion professionnelle des personnes en situation de handicap psychique (Symposium « Maladie mentale et travail »)

Colloque « *Lost in transition. Réussir les passages vers le rétablissement* » 26 novembre 2010, fondation du Nant, Vevey (Suisse) . B. Pachoud Du paradigme de la guérison au paradigme du rétablissement.