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# Effect of antipsychotic medication on overall life satisfaction among individuals with chronic schizophrenia: Findings from the NIMH CATIE study

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**Abstract**
The field of schizophrenia is redefining optimal outcome, moving beyond clinical remission to a more comprehensive model including functional recovery and improved subjective well-being. Although numerous studies have evaluated subjective outcomes within the domain of subjective quality of life in patients with schizophrenia, less is known about global evaluations of subjective well-being. This study examined the effects of antipsychotic medication on overall life satisfaction in patients with chronic schizophrenia. Data were drawn from the Clinical Antipsychotic Trial of Intervention Effectiveness (CATIE) study, where participants with a DSM-IV diagnosis of schizophrenia were randomized to receive olanzapine, perphenazine, quetiapine, risperidone or ziprasidone under double-blind conditions ($N=753$). The primary outcome measure was prospective change in subjectively evaluated overall life satisfaction scores following 12 months of antipsychotic treatment. Psychopathology, medication side effects and functional status were also evaluated, among other variables. Patients experienced modest improvements in overall life satisfaction ($d=0.22$, $p<0.001$), with no differences between antipsychotic medications (all tests, $p>0.05$). Change in severity of positive, negative, and depressive symptoms as well as functional status each demonstrated a small, albeit statistically significant, association with change in life satisfaction ($r=0.10$–0.21, $p$'s$<0.01$). In a multivariate regression model, change in clinical symptoms and functional status had limited independent predictive value for change in life satisfaction scores (explained variance $<3\%$). These data suggest that despite antipsychotic medications being effective for

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symptom-based psychopathology, such clinical effectiveness does not necessarily translate to improved general satisfaction with life. Clinicians should be aware that these two domains are not inextricably linked.

## 1. Introduction

The field of schizophrenia is redefining optimal outcome, moving beyond clinical remission to a more comprehensive model including functional recovery and improved subjective well-being (Remington et al., 2010). Antipsychotic medications have established themselves as the cornerstone of treatment for individuals with schizophrenia (Buchanan et al., 2010; Lehman et al., 2004), showing effectiveness for clinical symptoms (Leucht et al., 2013; Lieberman et al., 2005) and modest utility for improving psychosocial functioning (Swartz et al., 2007). Relative to clinical symptoms, subjective outcomes following antipsychotic treatment have been less thoroughly investigated.

Although patient satisfaction has been evaluated in the context of treatment for specific life domains (e.g., health-related) (Alonso et al., 2009), surprisingly the effects on overall satisfaction with life (SWL) remain unknown. It is worth mentioning that the concept of SWL differs from that of subjective quality of life or satisfaction with aspects of treatment as assessed by scales such as the Drug Attitude Inventory (Hogan et al., 1983) or the Subjective Well-being Under Neuroleptic Treatment Scale (Naber, 1995). These latter concepts assess subjective reactions specifically ascribed to objective conditions (e.g., satisfaction with living conditions, subjective experience of treatment, etc.). In contrast, the concept of SWL involves a global subjective assessment of all aspects of an individual's life and is, by definition, agnostic to objective conditions, although such conditions may potentially influence overall SWL (Diener, 1984; Gill and Feinstein, 1994; Lehman, 1983). Previous work has demonstrated that symptoms, medication-related side effects, and impairments in functioning adversely influence SWL scores in patients with schizophrenia (Fervaha et al., 2013); albeit, the strength of these associations is modest.

While some previous studies have examined the effect of antipsychotic medication on subjective quality of life more broadly defined in patients with schizophrenia (Kahn et al., 2008), treatment-related effects on general SWL are unknown. Furthermore, the impact of specific antipsychotic medications, as well as relative efficacy between medications, on longitudinal change in SWL in patients with chronic schizophrenia remains unknown. In the present study we examine whether treatment with antipsychotic medication affects patients' general life satisfaction using data from a prospective multi-center randomized double-blind controlled clinical trial. Specifically, we address the extent to which SWL improves over the course of one year following antipsychotic treatment. Next, we explore whether atypical antipsychotics are superior to a conventional antipsychotic in this regard, and lastly, we examine clinical predictors of change in SWL.

## 2. Experimental procedures

### 2.1. Study design and participants

We utilized data from the Clinical Antipsychotic Trial of Intervention Effectiveness (CATIE) study. Details of the study design and rationale (Stroup et al., 2003), as well as primary findings (Lieberman et al., 2005), have been presented elsewhere. The primary purpose of the CATIE study was to compare the effectiveness of atypical and conventional antipsychotic medications through a randomized controlled trial conducted between January 2001 and December 2004 at 57 sites in the United States (16 university clinics, 10 state mental health agencies, 7 Veterans Affairs medical centers, 6 private nonprofit agencies, 4 private-practice sites, and 14 mixed-system sites). One-thousand, four-hundred and ninety-three patients were initially randomized to receive olanzapine (7.5-30 mg/day), perphenazine (8-32 mg/day), quetiapine (200-800 mg/day), risperidone (1.5-6 mg/day), or ziprasidone (40-160 mg/day) under double-blind conditions and were followed up to 18 months or until treatment was discontinued for any reason (Stroup et al., 2003). Patients who discontinued their initially assigned treatment were eligible to receive other treatments and continue in the trial (Stroup et al., 2003). Details of treatments offered, as well as major findings, after discontinuation of the initially assigned treatment have been presented elsewhere (McEvoy et al., 2006; Stroup et al., 2006, 2007, 2009). Patients had monthly visits with study doctors.

The study inclusion criteria have been reported previously (Stroup et al., 2003). Briefly, participants were eligible if they were between the ages of 18 and 65 years and had a diagnosis of schizophrenia confirmed using the Structured Clinical Interview for DSM-IV Axis I Disorders (First, 1997). Participants were excluded from the study if they had a diagnosis of schizoaffective disorder, mental retardation, or other cognitive disorders; only one episode of schizophrenia; were pregnant or breast-feeding; or, had a serious and unstable medical condition.

Consistent with a previous report on functional status in the CATIE sample (Swartz et al., 2007), the primary endpoint for the current study was 12 months. Seven-hundred and fifty-three patients completed assessments at both the baseline and 1 year follow-up visit and are the primary sample for the current analysis.

The study was approved by the institutional ethics review board at each site, and written informed consent was obtained from the patients or their legal guardians. All participants demonstrated adequate decision-making capacity in regards to participating in the study as determined by the MacArthur Competence Assessment Tool (Appelbaum and Grisso, 2001).

### 2.2. Outcome measures

The primary outcome measure for the present study was prospective change in self-rated SWL scores following 12 months of treatment. Participants were included in the present analysis if both baseline and follow-up data was available. SWL was rated using a single item from the Lehman Quality of Life Interview (Lehman, 1988) that asks the patient to rate their overall SWL on a scale from 1 (terrible) to 7 (delighted). The specific prompt