

## Sexual dysfunction associated with second-generation antipsychotics in outpatients with schizophrenia or schizoaffective disorder: An empirical evaluation of olanzapine, risperidone, and quetiapine

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### Abstract

**Objective:** Evaluate sexual dysfunction, as measured by the Arizona Sexual Experience Scale (ASEX), in olanzapine-, quetiapine-, and risperidone-treated outpatients with schizophrenia or schizoaffective disorder.

**Method:** The sexual functioning of 238 outpatients (age  $\geq 18$  years) with diagnoses of schizophrenia or schizoaffective disorder who took quetiapine ( $n=57$ ), olanzapine ( $n=94$ ), or risperidone ( $n=87$ ) was evaluated with a one-time rating of the ASEX. The dose range for each treatment group was 5 to 40 mg/day ( $M=16.6$  mg/day,  $SD=7.4$ ) for olanzapine; 1 to 8 mg/day ( $M=3.9$  mg/day,  $SD=1.6$ ) for risperidone; and 50 to 900 mg/day ( $M=376.8$  mg/day,  $SD=213.4$ ) for quetiapine. Antipsychotic group designation was based on medication treatment at study entry (i.e., non-random assignment). Participant characteristics were collected to test for treatment group differences and for potential associations with severity of sexual dysfunction. The primary data analysis was a mixed linear model analysis of covariance with age, gender, and presence/absence of antidepressant known to cause sexual dysfunction included as covariates.

**Results:** There was a significant treatment effect on severity of sexual dysfunction, as measured by ASEX total scores ( $p=.04$ ). The adjusted average ASEX total scores were lower in the quetiapine ( $M=17.80$ ) than in the risperidone ( $M=19.69$ ) or olanzapine ( $M=20.34$ ) groups. Individual comparisons of the treatments on adjusted average ASEX total scores indicated a significant difference between olanzapine and quetiapine ( $p=.04$ ), but no difference between risperidone and quetiapine ( $p=.17$ ) or olanzapine and risperidone ( $p=.76$ ).

**Conclusions:** Quetiapine was associated with less severe sexual dysfunction than olanzapine and risperidone (albeit the effect between risperidone and quetiapine was not statistically significant). Olanzapine and risperidone were associated with a comparable degree of sexual dysfunction. Patients in all three treatment groups, nonetheless, experienced a moderately high degree

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of sexual dysfunction. Because the patients were not randomized, conclusions must be interpreted within the context of the quasi-experimental design.

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## 1. Introduction

Sexual dysfunction associated with antipsychotic medication is a common problem in persons with schizophrenia or schizoaffective disorder (Cutler, 2003; Ghadirian et al., 1982; Kotin et al., 1976). Despite this treatment challenge, there exists a paucity of research comparing the antipsychotic-associated sexual dysfunction of second-generation antipsychotic medications in schizophrenia (Byerly et al., 2004). In total, just four studies have conducted head-to-head comparisons of the sexual effects of the first-line, second-generation agents (excluding clozapine) (Bobes et al., 2003; Kim et al., 2002; Knegtering et al., 2003, 2004). One study utilized random assignment to open label quetiapine ( $n=25$ ) or risperidone ( $n=24$ ) (Knegtering et al., 2004). A second study included random assignment for 25 of 40 olanzapine-treated patients and 21 of 82 risperidone-treated patients (remaining patients were not randomized) (Knegtering et al., 2003). A third study switched 20 patients with risperidone-associated sexual dysfunction to 10 weeks of open label olanzapine treatment (Kim et al., 2002). The fourth study was a cross-sectional, quasi-experimental study of patients receiving olanzapine ( $n=228$ ), quetiapine ( $n=43$ ), or risperidone ( $n=234$ ) (Bobes et al., 2003).

In sum, of these 4 studies, risperidone was associated with greater sexual dysfunction compared to quetiapine (Bobes et al., 2003; Knegtering et al., 2004) and olanzapine (Bobes et al., 2003; Kim et al., 2002; Knegtering et al., 2003) [albeit the effect between risperidone and olanzapine did not reach statistical significance in Bobes et al. (2003)]. Of the comparison antipsychotics, quetiapine showed the lowest risk of sexual dysfunction—demonstrating significantly less sexual dysfunction than risperidone in two studies (Bobes et al., 2003; Knegtering et al., 2004) and a trend toward less sexual dysfunction vs. olanzapine in another study (Bobes et al., 2003).

The purpose of the current study was to build on prior research comparing the antipsychotic-associated sexual dysfunction of first-line, second-generation antipsychotics in schizophrenia. Specifically, the current study evaluated the degree of sexual dysfunction in olanzapine-, quetiapine-, and risperidone-treated outpatients

with schizophrenia or schizoaffective disorder. In contrast to prior research (Bobes et al., 2003; Kim et al., 2002; Knegtering et al., 2003, 2004), the current study used a validated instrument (ASEX) to measure the severity of sexual dysfunction (Byerly et al., 2006), accounted for the concomitant effects of several covariates on the severity of sexual dysfunction (which permits a more precise estimate of the treatment effect), and used a relatively large sample size ( $n=238$ ) of typical outpatients with schizophrenia or schizoaffective disorder who reside in the community and public mental health setting.

## 2. Method

### 2.1. Study design and participants

A quasi-experimental design with data from 238 outpatients was used to evaluate the sexual dysfunction associated with quetiapine, olanzapine, and risperidone. Data were collected over a four-year period from December, 2000, to November, 2003, via a one-time, cross-sectional rating of sexual functioning. Subjects were recruited from five Dallas County public mental health outpatient clinics. Most patients were recruited through study flyers and a small portion of patients were referred by treating clinicians. When potential patients initially contacted our group, they were informed that participation entailed a brief survey that evaluated their experience with their current psychiatric medications. To reduce the potential of selection bias, study staff avoided any reference to side effects of medications until patients were entered and study ratings initiated. Eligibility criteria for inclusion into the study included (a) DSM-IV diagnosis of schizophrenia or schizoaffective disorder as established by the outpatient clinic physician; (b) currently taking a single second-generation oral antipsychotic (specifically, olanzapine, quetiapine, or risperidone); and (c) a minimum age requirement of 18 years. Patients were excluded, however, if they had a general medical condition or history of a surgical procedure known to cause sexual dysfunction. Patients who were taking general medical medications or antidepressants known to cause sexual dysfunction were not excluded, but this covariate was

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