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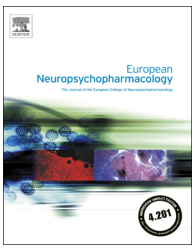

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SHORT COMMUNICATION

A modified Drug Attitude Inventory used in long-term patients in sheltered housing

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Abstract
The self-report Drug Attitude Inventory (DAI), in 30- and 10-item versions, provides unique information of clinical relevance for monitoring treatment adherence among people diagnosed with schizophrenia. The primary purpose of this paper was to evaluate the 10-item version among patients living in sheltered housing. Data were collected among 68 persons living in sheltered housing, most of them (82%) diagnosed with schizophrenia, 6% with non-organic psychoses, and 12% with other diagnoses. The dichotomic response format of the original DAI-10 was replaced by a 4-point Likert scale, in order to improve the resolution of the scale. Over 90% of the participants produced meaningful scores. A factor analysis suggested a 2-factor orthogonal structure: one highly homogenous factor (5 items) reflected wanted effects of the drug and displayed a bimodal distribution; one factor (3 items) reflected side effects. One item concerned the perceived control over one's drug treatment, which is a key clinical issue. One item was conceptually ambiguous and displayed no correlations with the other items. On the basis of the results we suggest cut-off scores which indicate the need for three kinds of adherence-improving interventions. Summing up, by dropping one item and using a Likert scale response format, the resulting instrument, **DAI-9**, appears to be an easy-to-use self-report instrument for monitoring drug attitudes and to identify needs for treatment adherence interventions among seriously ill patients.

1. Introduction

Following the de-institutionalization phase in psychiatry more patients are cared for as out-patients (Davis et al., 2012). Some

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patients with more complex needs are cared for by specialized out-reach teams (Burns, 2004). Those in need of continuous support and monitoring may, in accordance with a Swedish law, be referred to subsidized housings (Lindqvist et al., 2011). This type of sheltered housing is aimed at persons with long-lasting, serious mental health problems who need around-the-clock monitoring and support. During the last 15 years almost no studies have addressed the needs of this group (Bitter et al., 2009). The majority of people needing long-term care in psychiatric or social care institutions are diagnosed with schizophrenia (Taylor et al., 2009) and are more likely to suffer from other comorbid conditions (Mitchell and Malone, 2006).

Treatment non-adherence and drug discontinuation are large problems in long-term treatment of schizophrenia (Goff et al., 2010; Uggerby et al., 2011). Many potential predictors of future non-adherence were assessed among first episode patients with schizophrenia in the EUFEST project (Gaebel et al., 2010). An unexpected finding was that a simple instrument assessing patients' attitude towards drug treatment, DAI-30 was the best predictor for continuation of initiated drug treatment, even if the predicting power was low.

In a recent paper we compared the short version (DAI-10) with DAI-30 in long-term schizophrenia in two materials (Nielsen et al., 2012). The two versions were strongly intercorrelated (r=.93). In line with the EUFEST findings none of them displayed any significant association with poor insight or PANSS subscales, GAF or neurocognition (Gaebel et al., 2010). The two DAI versions appear to assess a unique clinical dimension relevant to non-adherence, which cannot be assessed by other commonly used scales.

In DAI-10, there are six positively phrased and four negatively phrased items, in contrast to the balanced mother scale (Nielsen et al., 2012). Three of the negatively phrased items refer to side-effects whereas most of the positively phrased items refer to symptom reduction, generating a confounding problem and an acquiescence problem. Furthermore, the resolution of DAI-10 is poor (0–10). These design flaws of the original DAI-10 scale leave room for improvement.

The data of the present paper was obtained within a larger project. The overall aim was to screen for physical and mental health problems among persons living in sheltered housing in the South of Sweden. The aim of the current report was to evaluate if a modified 10-item DAI self-report questionnaire generated clinically meaningful information in a group of seriously and chronically ill patients, most of whom are diagnosed with schizophrenia.

2. Experimental procedures

2.1. Participants

Persons living in 13 different subsidized housings in three different municipalities of southern Sweden during the years 2010–2011 were asked to participate. Potential participants were informed about the research project by the research team at group meetings at the sites. Each person was then approached individually and asked to fill in a set of self-report forms, including DAI-10, by a research team member. Participants were awarded nine Euros for completing the forms. Out of 135 users, 68 accepted to participate.

2.2. Measures

2.2.1. The DAI-10 scale (modified response format)

The standard DAI-10 phrasing in Swedish translation (Nielsen et al., 2012) was used with a modified response format (Likert scale) to the statements: Score 1: Does not agree; Score 2: Agrees to some extent; Score 3: Agrees to a large extent; and Score 4: Agrees fully to the statement. The items are listed in Table 1.

2.2.2. Statistical methods

Standard statistical methods, as implemented in the SPSS 18, were used as indicated in the text.

2.2.3. Ethics

The mother project, including this study, was approved by the Regional Ethics Committee in Lund.

3. Results

Sixty-eight participants were included (39 men, 29 women). They had lived in sheltered housing between 0 and 12 years. Sixty-six were Caucasian and two were of African origin. The age range was 21 to 71 years, with a median age of 50 years. Diagnosis according to ICD10 and current drug treatment were obtained from their physicians: 88% had a psychotic disorder (79% schizophrenia including 3 with schizoaffective disorder, 6% other non-organic psychoses) and 12% was diagnosed with various organic conditions including mild learning disability. Co-morbid substance misuse was registered for 23%, most often alcohol or benzodiazepines (18%). Six percent of the participants were currently not treated with antipsychotic drugs but all had experience of such treatment. In the group treated with antipsychotics 21% had clozapine, 32% had non-clozapine second generation antipsychotics, and 47% had first generation antipsychotic drugs as their main drug. Eight percent were treated with lithium or other mood stabilizers. Approximately half of the participants were given long acting injectable antipsychotics. Haloperidol equivalent doses ranged from 0 to 24 mg with a mean dose of 7.42 mg.

In four patients we saw a uniform pattern in answers, with a tendency to answer all questions in one of the

Table 1 Items of the DAI-10. Bold items refer to symptom reduction; items in italic refer to side-effects. Item 3 refers to the perceived control over one's drug treatment. Item 6 is conceptually ambiguous.

1	**For me, the good things about medication outweigh the bad**
2	*I feel strange, "doped up", on medication*
3	I take medications of my own free choice
4	**Medications make me feel more relaxed**
5	*Medication makes me feel tired and sluggish*
6	I take medication only when I feel ill
7	**I feel more normal on medication**
8	*It is unnatural for my mind and body to be controlled by medications*
9	**My thoughts are clearer on medication**
10	**Taking medication will prevent me from having a breakdown**