The long-term level of functioning in patients admitted for psychotic disorders with and without substance abuse

TURID MØLLER, OLAV M. LINAKER


The main objective of this study was to compare life skills between psychotic patients with substance abuse problems and psychotic patients without substance abuse problems. This is a cross-sectional study of 48 patients (26 inpatients and 22 outpatients) in a clinic for early intervention in psychosis. Patients were grouped into two categories based on if they had a substance abuse problem or not. Twenty-one (43.8%) had a substance abuse problem and 27 (56.2%) had not. We used several scales to measure substance abuse and the Life Skills Profile to measure aspects of functioning. A parametric test (t-test) was used to compare continuous variables. A non-parametric chi-square test was used to compare frequencies. The self-care subscore and the non-turbulence subscore were higher in the group with psychosis alone. These results were not significant controlling for age. The social contact subscore, the communication subscore, the responsibility subscore and the Life Skills Profile total score did not differ significantly between the groups. The abusers did not differ from the non-abusers in functioning in any area measured.

• Functioning, Life skills, Psychosis, Substance abuse.

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Substance use disorders occur in approximately 40–50% of individuals with schizophrenia (1). Compared with non-abusing individuals who have schizophrenia, those with co-existing schizophrenia and substance use have been found to have higher rates of homelessness (2, 3), more unemployment (4) and poorer overall functioning (5). A number of studies have also reported that substance abuse can precipitate symptoms and hospitalizations in patients with schizophrenia (6–8). Haywood et al. (9) found that drug and alcohol problems were the most important predictors for frequent hospitalization in patients with schizophrenia. Substance abuse in schizophrenia is also associated with more violence (10, 11), increased criminal offences (12, 13), incarceration (14) and risk of suicide (3, 15, 16).

The study of the relationship between psychoactive substances and schizophrenic symptoms and functioning is complex and the results are inconsistent. Some studies have found an association between social dysfunction and comorbid substance use in schizophrenia. Theses studies indicate that substance use is associated with better social functioning (17, 18). Such an interpretation of the literature suggests that social skills, social affiliation and motivation may contribute to the desire and ability to obtain substances (17). Arndt et al. (18) have proposed a two-stage model wherein increased sociability leads to exposure to substance use pre-morbidly and that subsequent development of schizophrenia then leads to pathological use as a method to cope with the stress associated with mental illness (a self-medication component).

The literature fails to support consistently an association between substance use and better functioning. Sevy et al. (19) found that there were no differences in premorbid adjustment between cocaine dependent schizophrenics and schizophrenics without a history of cocaine use. In a study of cannabis abuse, Linszen et al. (7) found no differences in premorbid social attainment or other prognostic factors between abusing and non-abusing schizophrenics. Dixon et al. (17) found that there were no differences in psychosocial adjustment between substance abusing and non-abusing patients with schizophrenic disorders. Drug-abusing patients did have significantly better sexual adjustment
and worse scholastic adaptation in early adolescence (17). These group differences were not found when only schizophrenics were assessed (dropping patients with schizoaffective disorders and schizoaffective disorders). Kovasznay et al. (5) found that first-admission schizophrenia patients with comorbid substance use disorders did not differ from other schizophrenia patients in the percentage of high school graduates, the percentage ever married, or in the percentage working or attending school prior to the index admission. These data suggest that better premorbid functioning, at least when broadly defined, is not associated with increased risk of substance abuse. Although the above studies fail to indicate that better premorbid adjustment is related to substance use disorders in schizophrenia, Arndt et al. (18) did find significantly better premorbid social functioning in schizophrenics with a pattern of “pathological use” of substances. The interpretation of the findings of Arndt et al. are somewhat limited, since the definition of pathological use was not based on DSM criteria for abuse or dependence.

Unfortunately, most of the mentioned studies give little information about which substances were abused by the studied subjects, and most of the differences we cite are based on studies of groups abusing several different or multiple substances.

In summary, the relationship between level of functioning and substance abuse is not clear. We therefore wanted to examine differences in life skills between psychotic patients with and without substance abuse.

Materials and Methods

**Subjects**

The subjects in this study were 48 psychotic patients with different ICD-10 diagnoses who were assessed in a clinic for early intervention in psychosis at Østmarka Psychiatric Hospital in Trondheim, Norway. The patients in the clinic are mainly recruited from the acute wards in the county, but all outpatients clinics as well as general practitioners were requested to refer patients to the unit.

The catchment area for the acute wards has about 255,000 inhabitants, half of them in the city of Trondheim, the others in rural areas. All patients had a psychotic condition at admittance to the clinic, but after examination and further treatment, some had other diagnoses as the main focus of the present treatment. These can be seen in Table 1.

Twenty-six (54.2%) were inpatients and 22 (45.8%) were outpatients at the time of assessment. The patients’ age, gender and mean age of onset of psychotic symptoms is presented in Table 2. The six persons missing in analysis of functioning did not consent to participate in this part of the study. These patients’ mean age was 31 years; 3 were male and 3 were female. All six patients were outpatients.

Information about functioning was obtained with the Life Skills Profile (LSP) completed by the patient’s primary nurse (20). LSP is a 39-item scale, which was developed as a measure of function and disability in schizophrenia. The 39 items of the scale measure five key

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Number of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia all</td>
<td>12</td>
</tr>
<tr>
<td>Paranoid</td>
<td>4</td>
</tr>
<tr>
<td>Hebephrenic</td>
<td>1</td>
</tr>
<tr>
<td>Catatonic</td>
<td>0</td>
</tr>
<tr>
<td>Undifferentiated</td>
<td>6</td>
</tr>
<tr>
<td>Simple</td>
<td>1</td>
</tr>
<tr>
<td>Persistent delusional disorder</td>
<td>1</td>
</tr>
<tr>
<td>Acute and transient psychosis</td>
<td>3</td>
</tr>
<tr>
<td>Mood disorders</td>
<td>0</td>
</tr>
<tr>
<td>Unstable personality disorder</td>
<td>1</td>
</tr>
<tr>
<td>Paranoid personality disorder</td>
<td>0</td>
</tr>
<tr>
<td>Developmental disorders</td>
<td>2</td>
</tr>
<tr>
<td>Multiple drug use disorder</td>
<td>1</td>
</tr>
<tr>
<td>Lacking information</td>
<td>1</td>
</tr>
</tbody>
</table>

$s, standard deviation; ns, not significant.$
dimensions: self-care (grooming, hygiene, budgeting, food preparation, etc.); non-turbulence (absence of offensiveness, violence, intrusiveness, anger, control, etc.); social contact (friendship, interpersonal interests and activities, etc.); communication (conversational skills, inappropriate gesturing, etc.); and responsibility (co-operativeness, responsibility regarding personal property and medication, etc.). The LSP has been shown to have good internal consistency of subscales and adequate inter-rater reliability (20). The scale is constructed so that higher score indicate better functioning.

Information about substance abuse was obtained with Clinical Alcohol Use Scale (CAUS; 20), Clinical Drug Use Scale (CDUS; 21), Short Michigan Alcoholism Test (SMAST 13; 22) and Drug Abuse Screening Test (DAST-20; 23). The CAUS and CDUS were filled in by professional staff and SMAST 13 and DAST-20 were filled in by the patients. On the CAUS and CDUS, the subjects’ rate their substance abuse on a 5-point scale: abstinent, use without impairment, abuse, dependence and dependence with institutionalization (24). SMAST is a 13-item screening instrument where a score of 4 or more is suggestive of alcoholism. DAST-20 is a 20-item screening instrument developed for clinical screening and treatment evaluation research in the substance abuse field. The DAST-20 has evidenced high internal consistency/reliability and good item-total score correlation among psychiatric patients (25). A score of 5 or more on DAST-20 indicate substance abuse. In our study one of the following indicates substance abuse problems: CAUS or CDUS $\geq 2$, SMAST $> 3$ or a DAST-20 $> 4$. The correlation between the four scales were significant and varied between $\rho = 0.38$ and 0.69.

Statistics
Patients were grouped into two categories based on whether they had a substance abuse problem or not. The variables were compared between the two groups based on the null hypothesis: there is no significant difference in level of functioning between the two groups. The significance level of the comparison was set to $\alpha < 0.05$. A parametric test (independent $t$-test) was used to compare continuous variables (LSP subscales). Two-tailed significance levels were used. Chi-square test was used to compare frequencies by variables (gender, education, marital status, diagnosis of schizophrenia). We used the squared correlation ratio, eta, to estimate the size of the differences between the two study groups.

Results
In our sample, 21 patients (43.8%) had a substance abuse problem and 27 (56.2%) had not. The characteristics for the groups are summarized in Table 2.

The patients with psychosis and substance abuse are significantly younger than the patients with psychoses alone ($t = -2.8, \, df = 46, \, P < 0.01$). The magnitude of the differences was large (eta-squared $= 0.15$). They were also significantly younger at the onset of psychotic symptoms ($t = -2.7, \, df = 41, \, P < 0.01$). The magnitude of this difference was large (eta-squared $= 0.15$). Fewer of the substance abusers had completed high school (chi-squared $= 5.3, \, df = 1, \, P = 0.05$). No statistically significant differences were found between the two groups for gender, marital status, diagnosis of schizophrenia and numbers of years since onset of psychotic symptoms.

Table 3 shows the two groups’ differences in functioning. We found significantly higher scores in non-substance abusers than in substance abusers on the subscale for self-care ($t = -2.4, \, df = 40, \, P < 0.05$). The magnitude of the difference was large (eta-squared $= 0.13$). There was also a significant difference between substance abusers and non-substance abusers on the subscale for non-turbulence. The substance abuse patients have less non-turbulence functioning than the non-substance abusers ($t = -2.2, \, df = 40, \, P < 0.05$). The magnitude of the difference was moderate (eta-squared $= 0.11$). Controlling for age these differences became non-significant. There were no significant differences in the subscales social contact, communication, responsibility and the LSP total score.

Discussion
The study is cross-sectional, and this precludes conclusions about causation and aetiology. However, if a hypothesis predicts a strong positive or negative relationship between variables, the hypothesis can be discredited if such a relationship is not found, provided this is not

Table 3. Differences in functioning in psychotic patients with and without substance abuse.

<table>
<thead>
<tr>
<th>Life Skills Profile (LSP) scale</th>
<th>Psychoses alone, $n = 27$</th>
<th>Psychoses with substance abuse, $n = 21$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-care</td>
<td>35.33</td>
<td>31.81</td>
<td>$&lt; 0.05$</td>
</tr>
<tr>
<td>Non-turbulence</td>
<td>41.76</td>
<td>38.24</td>
<td>$&lt; 0.05$</td>
</tr>
<tr>
<td>Social contact</td>
<td>14.76</td>
<td>15.52</td>
<td>ns</td>
</tr>
<tr>
<td>Communication</td>
<td>19.67</td>
<td>20.33</td>
<td>ns</td>
</tr>
<tr>
<td>Responsibility</td>
<td>17.00</td>
<td>16.67</td>
<td>ns</td>
</tr>
<tr>
<td>Mean LSP total score</td>
<td>128.43</td>
<td>122.86</td>
<td>ns</td>
</tr>
</tbody>
</table>

ns, not significant.
due to other factors, such as invalid selection of subjects or assessment.

Our sample of early psychosis is probably not complete. We believe that patients with well-managed and less severe psychotic illness have had less chance of referral. We also believe that persons who refuse or avoid the healthcare system because it may hamper their lifestyle may have had less contact with the clinic. Among these, we would find the very ill and many substance abusers. If this is true, we probably lack some of the least and the most ill, and the substance abusers may be under-represented. We still believe that the sample is representative for the typical patient with early psychosis.

Previous studies have shown that the relationship between substance abuse and the level of functioning in psychotic patients is unclear. The present study found absent differences between the two groups in overall functioning. According to the result of Kovasznay et al. (5) poorer overall functioning should be strongly associated with substance abuse. We conclude that the result of Kovasznay et al. (5) finds little support in our result.

We found differences in education between the two groups. The group of substance abusers was less educated than the non-substance abusers. This supports the result of Dixon et al. (17) who found worse scholastic adaptation among drug-abusing patients in early adolescence. It may indicate worse premorbid functioning in the abuser group, or a better premorbid functioning in the non-abusing group, possibly due to early debut of substance abuse. This result contrasts the study of Arndt et al. (18), who found significantly better premorbid social functioning in schizophrenics with a pattern of “pathological use” of substances.

Our study shows differences in self-care functioning and non-turbulent functioning between the groups. The problems the substance-abusers seem to have in self-care functioning may be related to their higher rates of homelessness (2, 3), and the economic consequences of drug abuse with the ensuing limited possibilities to learn grooming, hygiene, budgeting, food preparation, etc. The problems they seem to have in non-turbulence functioning may be related to their violence problems (10, 11), increased criminal offences (12, 13) and incarceration (14). There are, however, possibilities that the differences may be due to the age differences between the groups, since the differences became non-significant when controlling for age.

We found no difference in social contact functioning and communication functioning between the two groups. These results do not support the study of Dixon et al. (17) who suggest that social skills, social affiliation and motivation may contribute to the desire and ability to obtain substances. The result can partly support the two-stage model of Arndt et al. (18), who indicate that increased sociability premorbidly leads to exposure to substance use and later to the use of substances as a method to cope with stress associated with mental illness. Our results do not, however, support increased premorbid sociability. We lack direct measures, but lower academic and marital success as well as earlier debut of psychosis may give some indication.

Our study has some methodical limitations. First, comparison of the level of functioning in the two groups psychoses alone and psychoses with substance abuse assume that the subjects are otherwise equivalent. Several studies indicate that this may not be the case. For example, substance-abusing schizophrenic patients have family backgrounds that include more substance abuse, and thus presumably more early experience of disruptions and disorders of development (17, 26–30). Accurate assessment of substance abuse is problematic in this population (24). No laboratory tests were used in this study, only questionnaires. We attempted to compensate for this by using both self-rating and therapists’ rating of abuse.

The patients in the group of psychoses and substance abuse are younger, less educated, younger at onset of psychotic symptoms, and they show lower self-care functioning and non-turbulent functioning. This may indicate that late onset of psychotic symptoms gives better possibilities of more education and establishing grown-up values as self-care functioning and non-turbulent functioning. Higher age in the group of psychoses alone may also explain higher functioning in this group. However, the higher education and higher age at onset of psychotic symptoms in this group may also imply other differences between the two groups. Younger age at debut is associated with more negative symptoms and poorer overall prognosis.

Conclusion
Altogether, we find less impact of substance abuse disorder on the factors we have studied than we expected. The abusers did not differ from the non-abusers in functioning in any area measured.

References
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