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ORIGINAL PAPER

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# Background factors in patients with schizoaffective disorder as compared with patients with diabetes and healthy individuals

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**Abstract** Family history and psychosocial background factors were studied in married patients with a DSM-III diagnosis of schizoaffective disorder ($n$ = 17, partners $n$ = 16), married patients with diabetes ($n$ = 10, partners $n$ = 10) and married healthy individuals ($n$ = 8, partners $n$ = 8). The two latter groups were comparison control groups matched for gender and age to the patients with schizoaffective disorder. Affective disorder, not particularly schizoaffective disorder, was more common in first- and tended to be more common in second-degree relatives of patients with schizoaffective disorder as compared with controls. Poor parental relations, especially to the father, during the formative years were prominent in patients with schizoaffective disorder as compared with the controls. The same patients also more often than others gave a report of sexual encroachment, inside or outside the family, and corporal punishment during the growing-up years.

**Key words** Schizoaffective disorder · Family history · Poor parental relations · Sexual encroachment · Corporal punishment

## Introduction

In schizoaffective disorder affective and schizophrenic symptoms can present together or in an alternating fashion. Symptoms related to schizoaffective disorder may also exist in cycloid psychosis (Perris and Brockington 1981; Jönsson 1992; Lindvall et al. 1993). Thus, it is necessary not only to determine if patients with a mixture of both affective and schizophrenic symptoms may be classified as having a schizoaffective disorder, but also to classify different subtypes of schizoaffective disorder, i.e. affective or schizophrenic (Tsuang and Coryell 1993).

In a critical review of the literature life events prior to onset was identified as a risk factor for affective disorders, whereas intimate relationships were found to be protective (Hirschfeld and Cross 1982). Few data on the relationship between schizoaffective disorder and psychosocial risk factors during the growing-up years have been reported thus far.

The work presented in this paper is part of a cross-sectional study investigating the importance of different background factors in schizoaffective disorder by comparing married patients with schizoaffective disorder, married patients with diabetes and married healthy individuals (Nettelbladt et al. 1995). The principal aim of the present study was to elucidate the contribution of family history and psychosocial risk factors in the aetiology of schizoaffective disorder. More specifically, the following questions are raised:

1. Does the family history of psychiatric disorder differ between individuals with a schizoaffective disorder as compared with non-psychiatrically ill individuals?

2. If there is a family history which is the prevalence of mood disorders as compared with schizophrenia in the relatives of the schizoaffective probands?

3. Do factors in the past and present psychosocial life history differ between the individuals with a schizoaffective disorder as compared with non-psychiatrically ill individuals?

## Subjects and methods

The present paper is a cross-sectional study comparing married patients with schizoaffective disorder, married patients with diabetes and married healthy individuals. The two latter groups were matched controls with respect to gender and age. The study took place between May 1986 and May 1990.

### Subjects

*Married patients with a schizoaffective disorder*

The case records of all patients who during the period of investigation had gotten a diagnosis of an organic or functional psychosis

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in ICD-8 or ICD-9 were investigated and diagnosed according to DSM-III by the first author (P.N).

Thus, all patients diagnosed as having a DSM-III diagnosis of schizoaffective disorder and living in unbroken families ($n$ = 18) were, together with their partners, contacted and investigated in a phase of remission 1 or 2 weeks after their discharge from the mental hospital (S:t Lars) or the psychiatric department of the general hospital in Lund, a university town in southern Sweden. One patient refused to participate in the study, because the disease had been such a severe mental trauma to her that she lacked strength to discuss it. In another case the patient was interviewed, but her partner refused to participate. Thus, this sample consisted of 17 patients diagnosed as having a schizoaffective disorder (PS), 13 women and 4 men, and their 16 partners (PPS).

Of the schizoaffective disorders, 12 were of the bipolar type (current or previous manic syndrome) and 5 of the depressive type (no current or previous manic syndrome). The duration of the illness ranged from 3 to 31 years (mean 12.06 years). In 2 cases it was the first hospital admission, although these patients had been psychiatric outpatients for many years. The remaining 15 patients had two to seven hospital admissions (mean 3.11).

*Married patients with diabetes*

From the diabetic registers of the Department of Community Health Sciences, Lund University, Dalby, and the Departments of Medicine, in Lund and Malmo, Lund University, patients with diabetes were selected. They were, to fulfill the criteria, to have been hospitalized, to live in an unbroken family and to be of the same gender and age as the patients with schizoaffective disorder. Ten patients fulfilled these criteria. The duration of the illness ranged from 5 to 35 years (mean 17.56 years). The number of hospital admissions was one to five (mean 2.3). These patients and their partners were all contacted, and all agreed to participate in the study. Thus, the diabetic sample consisted of ten patients with diabetes (PD) and their ten partners (PPD).

*Married healthy individuals*

From a previously investigated sample representative of unbroken Swedish families (Uddenberg 1974; Nettelbladt 1981), eight healthy individuals were selected. They were to fulfill the same criteria as listed above for the married patients with diabetes, except for the criterion of hospitalization. These individuals and their partners agreed to participate in the study. Thus, this sample consisted of eight healthy individuals and their partners (HI, $n$ = 16).

## Methods

All patients having been diagnosed to suffer from a schizoaffective disorder according to DSM-III or diabetes, as well as their healthy corresponding partners, were interviewed by one of the investigators (P.N.), an experienced psychiatrist and general practioner, who also made the diagnostic assessments. Their partners were interviewed by another investigator (C.S.), an experienced social worker and trained family therapist. The interview was semi-structured and the interview technique was very much the same as described by Uddenberg (1974) and Nettelbladt (1981).

*Social background*

The individual was asked about his or her educational background. The educational level was estimated as high if the individual had a university degree, low if the individual had no education beyond elementary school, and moderate if the individual had neither a high or low education. The professional situation was discussed. The individual was asked how many jobs he or she had held, what his or her present profession was, if he or she was satisfied with the profession, for how long the profession had been held and if he or she worked full or part time. The economical situation was estimated by asking the individual about his or her income, about the total income of the family and about financial support. The individual also gave his or her opinion about whether the family had enough money to spend on a four-grade scale (money does not suffice to money more than enough). Information about the present dwelling conditions was gathered. Type of dwelling (own house, apartment house), standard of dwelling (modern, half modern, old) and living place (city, town, small town, countryside) were discussed. Information about the social situation during the growing-up years was collected by posing the same questions as above about the educational background of the parents, the professional and economical situation of the parents and the dwelling conditions. Questions about the marital status of the parents (divorce, step parents) were also posed.

*Emotional background*

Contact with each of the parents was evaluated for childhood (up to 12 years) and adolescence (13–20 years). A good contact was noted when a close, open and warm relationship to the parent in question was reported. In contrast, poor contact was registered when the parent was described as distant or cool, or when there had been more or less permanent conflicts.

When the discussion about the individual's emotional relationship to his or her parents was finished, a global assessment of the individual's description of his or her father and mother, respectively, was made. When the positive feelings were the most prominent, the description was estimated as positive. In contrast, when the negative feelings seemed to dominate, the description of the parent was considered to be negative. When neither positive nor negative feelings seemed to dominate, an ambivalent attitude was noted. When the individual had been brought up by people other than his or her biological parents, the parent figure whom the individual recognized as the 'significant' one was regarded as 'the father' or 'the mother'.

The individual was asked about his or her opinion of the marital relationship between the parents and about the way he or she had been reared ('authoritarian', 'firm, but understanding', 'free', 'child centred' or 'parent centred').

The marital relationship between the spouses was evaluated. The individual was asked to give a free description of his or her partner. When this description was dominated by positive feelings, a positive attitude was registered. When negative feelings at least as strong as the positive ones were reported, an ambivalent attitude was noted. When negative feelings dominated, a negative attitude was noted.

A sexual history was taken. The individual reported about the atmosphere towards sexuality in the parental home, experience of sexual encroachment, homosexual contacts, age at sexual debut, number of sexual paartners, sexual functioning, sexual satisfaction, average coital frequency in the past year and contraceptive method. The criteria for sexual encroachment were similar to those described in the Dissociative Disorders Interview Schedule (Ross et al. 1989): The encroachment had (a) occurred at age 18 or under, (b) involved physical contact, (c) involved a perpetrator and (d) shown clear evidence of coercion.

*Health*

Information about diagnosis, family history, previous and present health and medication was gathered from the patient's case record by the first author (P.N.). The individual was asked to give a free description about his or her past and present health. A family history about the mental health in first- (parents, siblings) and second-degree relatives (grandparents, aunts, uncles, cousins, half-siblings) was taken. Based on the individual's report and data about heredity in the patient's case record an attempt was made to categorize the occurrence of a mental disorder in a relative as primarily affective (depression, mania, schizoaffective disorder) or schizophrenic.

The consumption of minor tranquillizers, neuroleptics, thymoleptics, lithium and drugs for somatic disorders was estimated.

The present mental health was measured in a standardized manner. The Comprehensive Psychopathological Rating Scale (CPRS) by Åsberg et al. (1978) was used to evaluate psychopathological symptoms. It consists of 40 reported and 24 observed items with four defined steps per item and with the possibility of scoring three undefined steps in between. The ratings of the reported and observed items were summarized for each patient separately. The scale has shown satisfactory inter-rater and cross-cultural reliability as well as empirical validity (Åsberg et al. 1978). A clinical assessment of the individual's psychiatric status was made.

### Statistics

Student's *t*-test was used to test differences between means (McNemar 1959). The $\chi^2$ test was used to test for differences between proportions. Yates' correction for discontinuity was employed when any expected value was below 5. When the total number of individuals was particularly low, Fisher's exact probability was calculated. All tests were two-tailed and a significance level of 0.05 was used (Siegel 1956).

## Results

### Social characteristics

The separate groups did not differ with respect to social characteristics (Table 1). Neither did the answers to the questions about the social situation during the growing-up years differ between the groups.

### Affective disorder in relatives

#### *First-degree relatives*

Affective disorders were more common in biological fathers in the PS group as compared with the rest (PPS+PD+PDP+HI) (Table 2). The PS group comprised 4 men and 13 women. One of these men had a biological father with an affective disorder; the biological fathers of the three other men had no mental disorder. Also, affective disorder tended to be more common in the siblings in the PS group as compared with the rest ($P = 0.10$).

Affective disorder tended to be more frequent in the biological mothers in the PS group (affective disorder/no affective disorder: 5/12) than in the PD+PDP+HI groups (affective disorder/no affective disorder: 3/33, $P = 0.1119$). Also, affective disorder tended to be more frequent in the biological mothers in the PPS group (affective disorder/no affective disorder: 5/11) than in the PD+PDP+HI groups (affective disorder/no affective disorder: 3/33, $P = 0.0896$).

However, when the PS group and the PPS group were put together and compared with the rest (PD+PDP+HI), affective disorder in the biological mothers was more common in the PS group + the PPS group (affective disorder/no affective disorder: 10/23) as compared with the rest (PD + PDP + HI: affective disorder/no affective disorder: 3/33, $P = 0.0197$). Schizophrenia was not found in any of the first-degree relatives.

#### *Second-degree relatives*

Affective disorder tended to be more common in cousins ($P = 0.0664$) in the PS group as compared with the rest (PPS + PD+PDP+HI). Otherwise, there were no differences between the groups with respect to occurrence of affective disorder in second-degree relatives. Schizophrenia was not found in any of the second-degree relatives.

**Table 1** Social characteristics ($n = 69$). PS patient with schizoaffective disorder; PPS partner to patient with schizoaffective disorder; PD patient with diabetes; PDP partner to patient with diabetes; HI healthy individual

| | PS ($n = 17$) | PPS ($n = 16$) | PD ($n = 10$) | PDP ($n = 10$) | HI ($n = 16$) | PS/rest |
|---|---|---|---|---|---|---|
| Men/Women | 4/13 | 3/13 | 4/6 | 6/4 | 8/8 | n.s. |
| Age (years) | 40.5 ± 6.2 | 41.6 ± 6.9 | 40.9 ± 3.6 | 42.4 ± 9.8 | 41.9 ± 3.3 | n.s. |
| University studies | 3 | 6 | 2 | 2 | 4 | n.s. |
| Regularly employed | 17 | 16 | 10 | 10 | 16 | Incalc |
| Family income (≥ median) | 7 | – | 4 | – | 6 | n.s. |
| Own house | 13 | – | 6 | – | 8 | n.s. |
| Lived together (years; ≥ mean) | 16.8 | – | 16.3 | – | 19.0 | $P = 0.88$ (n.s.) |

**Table 2** Affective disorder in relatives ($n = 69$)

| | PS ($n = 17$) | PPS ($n = 16$) | PD ($n = 10$) | PDP ($n = 10$) | HI ($n = 16$) | PS/rest |
|---|---|---|---|---|---|---|
| Biological father | 6 | 1 | 0 | 0 | 2 | $P = 0.0065$ |
| Biological mother | 5 | 5 | 2 | 0 | 1 | n.s. |
| Sibling | 5 | 2 | 1 | 0 | 2 | $P = 0.10$ (n.s.) |
| Grand parents | 2 | 1 | 1 | 0 | 3 | n.s. |
| Cousin | 3 | 0 | 0 | 0 | 1 | $P = 0.0664$ (n.s.) |

**Table 3** Mental health ($n = 69$)

| | PS ($n = 17$) | PPS ($n = 16$) | PD ($n = 10$) | PDP ($n = 10$) | HI ($n = 16$) | PS/rest |
|---|---|---|---|---|---|---|
| Psychiatric contact in formative years | 17 | 3 | 1 | 1 | 3 | $P = 0.0001$ |
| CPRS (reported > med) | 15 | 9 | 2 | 2 | 6 | $P = 0.0003$ |
| CPRS (obs > med) | 3 | 4 | 0 | 1 | 0 | n.s. |
| Psychosomatic health (> med) | 11 | 9 | 3 | 3 | 8 | n.s. |
| Neuroleptics/thymoleptics | 13 | 0 | 1 | 0 | 1 | $P = 0.0001$ |
| Minor tranquillizers | 5 | 1 | 0 | 0 | 1 | $P = 0.0455$ |
| Drugs for somatic disease | 6 | 3 | 10 | 0 | 2 | n.s. |

**Table 4** Emotional background ($n = 69$)

| | PS ($n = 17$) | PPS ($n = 16$) | PD ($n = 10$) | PDP ($n = 10$) | HI ($n = 16$) | PS/rest |
|---|---|---|---|---|---|---|
| Contact with father in childhood, poor | 6 | 0 | 1 | 0 | 0 | $P = 0.005$ |
| Contact with father in adolescence, poor | 7 | 1 | 1 | 0 | 1 | $P = 0.001$ |
| Father described negatively | 6 | 0 | 2 | 0 | 1 | $P = 0.0065$ |
| Contact with mother in childhood years, poor | 3 | 0 | 0 | 0 | 1 | $P = 0.07$ |
| Contact with mother in adolescence, poor | 3 | 1 | 0 | 0 | 2 | $P = 0.31$ |
| Mother described, negatively | 5 | 2 | 0 | 0 | 2 | $P = 0.0583$ |
| Parental marriage, poor | 8 | 1 | 2 | 0 | 0 | $P = 0.0007$ |

## Mental health

Patients with schizoaffective disorder reported psychiatric contact during their formative years more often than others. Patients with schizoaffective disorder reported symptoms above the median on the CPRS more often than others. However, the observed number of symptoms on the CPRS did not differ between the groups (Table 3). None of the patients with a schizoaffective disorder were considered psychotic.

Patients with schizoaffective disorder had a high intake of medication for psychiatric ailments (neuroleptics, thymoleptics, minor tranquilizers) more often than others. Thirteen of the patients with schizoaffective disorder were regularly taking lithium.

On the other hand, there were no associations between the occurrence of schizoaffective disorder and the intake of medication for somatic ailments. Nine of the patients with diabetes were regularly taking insulin; one anti-diabetic tablets.

## Emotional background characteristics (Table 4)

Almost one third (4 of 13; 30%) of the patients with schizoaffective disorder reported that they had had a stepfather during their growing-up years, whereas only 6% (3 of 49) of the other family members reported the presence of a stepfather during the same period ($P = 0.10$, n.s.; Table 4).

Patients with schizoaffective disorder tended to describe their mother in a negative way ($P = 0.0583$, n.s.) and tended to report a poor contact with her in childhood ($P = 0.07$, n.s.), but not in adolescence ($P = 0.31$, n.s.). The same patients also more often than others described their father in a negative way and reported a poor contact with him both in childhood and adolescence. Patients with a schizoaffective disorder reported a poor marital relationship between their parents during their formative years more often than others.

There was no association between the groups and the way they had been reared. On the other hand, corporal punishment during the growing-up years was more common in patients with schizoaffective disorder [corporal punishment, yes/no: 11/6 (PS) vs 16/36 (PPS + PD + PDP + HI); $P = 0.0128$].

## Sexual history

A report of sexual encroachment during the formative years was more often reported by patients with schizoaffective disorder [sexual encroachment, yes/no: 8/9 (PS) vs 3/49 (PPS + PD + PDP + HI); $P = 0.0003$]; expressed in percentages 47% (PS) vs 6% (PPS + PD + PDP + HI). Also, the same patients had less often been informed about sexual matters during their growing-up years [informed about sex, yes/no: 6/11 (PS) vs 39/11 (PPS + PD + PDP + HI); $P = 0.0012$]. Age at sexual debut and number of sexual partners did not differ between the groups. None of the individuals reported homosexual contacts.

## Marital and sexual relationship

The patient's description of his or her partner did not differ between the groups; nor did sexual functioning, sexual satisfaction, average coital frequency in the last year and contraceptive method.

## Discussion

In the present study the patients with schizoaffective disorder had a favourable prognosis. Although they had been sick for many years, they were married, employed and had a good economic status. Twelve of them had experienced a mania and five a depression. Thirteen of them were treated with lithium. Thus, the present sample of schizoaffectives may be viewed to suffer primarily from a mood disorder. Moreover, the present study was undertaken in the late 1980s. If the patients had been diagnosed now, they would primarily meet the criteria for schizoaffective disorder presented in the DSM-IV.

In a family study of mood disorders including schizoaffective disorders, lifetime prevalences of major affective disorders were 37, 24, 25, 20 and 7% in relatives of probands with schizoaffective, bipolar I, bipolar II, and unipolar disease, and normal controls. The data were interpreted to indicate that the different affective disorders represent thresholds on a continuum of underlying multifactorial vulnerability. Gender-related transmission of morbid risk was not present (Gershon et al. 1982). In another study a positive family history for schizophrenia occurred in 9.8% of schizophrenic probands and in none of the schizoaffective and manic probands (Pope et al. 1980). It was concluded that the diagnostic separation of schizophrenia from schizoaffective disorder and manic disorder appears to be valid, whereas the diagnostic separation of schizoaffective disorder from manic disorder does not appear to be valid. Other data indicate that DSM-III-R schizoaffective disorder resembles schizophrenia (Tsuang and Coryell 1993).

On the other hand, Angst et al. (1979) proposed that schizoaffective disorder is a single disorder with genetic relation to both schizophrenia and affective disorder. Also, Tsuang (1991) compared the morbidity risks for schizophrenia and affective disorder in the relatives of schizoaffective patients with such risks in the relatives of those with schizophrenia and affective disorder. Tsuang (1991) considers that the results support the view that schizoaffective disorder is neither schizophrenia nor affective disorder.

The findings in our study may be compatible with the view that schizoaffective disorder is a mood disorder diagnostically separated from schizophrenia (Pope et al. 1980; Gershon et al. 1982). Thus, affective disorder, not particularly schizoaffective disorder, was more common in first-degree relatives and to some extent tended to be more common in second-degree relatives to patients with schizoaffective disorder as compared with controls. Also, our finding of a negative family history of schizophrenia among the relatives to patients with schizoaffective disorder replicates the findings of two of the studies mentioned above (Pope et al. 1980; Gershon et al. 1982).

An interesting finding is that affective disorder in the biological mothers to both the schizoaffective patients and their spouses was more common than in the reference groups. A possible interpretation of this finding is that the experience of a parent with an affective disorder may provide a more or less conscious motivation to find a partner with the same experience. It is with such a partner that the emotional needs of the spouse may be satisfied.

Among the environmental factors related to schizoaffective disorder, poor parental relations, especially to the father, during the formative years was prominent. Previous studies (Langner and Michael 1963; Vaillant 1974; Uddenberg 1974; Nettelbladt 1981) have pointed out that there exists a relationship between poor mental health and poor emotional relations to the parents. The interaction between poor parental relations in the formative years and later poor mental health may be complex and not specific. It is, however, possible to presume that negative experiences of the parents in the formative years may render individuals predisposed by inheritance to affective disorder more susceptible.

A report of sexual encroachment, inside or outside the family, was more often reported by patients with schizoaffective disorder. As known to the present authors, there are no other studies relating sexual encroachment to schizoaffective disorder.

For comparison, it may be instructive to examine some of the larger studies on sexual encroachment in the general population. Due to methodological differences and diagnostic inconsistencies, reported prevalences vary between 4 to 67% (Pope and Hudson 1992; Kreyberg-Normann et al. 1992). In a Canadian sample using the same criteria as in our study, sexual encroachment was reported in 17.6% of females and 8.2% of males before the seventeenth birthday (Bagley 1989). In a random sample of Norwegian women, childhood sexual abuse involving genital contact was reported by 8.5% of the women (Schei 1990). In an American community-based study the prevalence of childhood sexual assault before 16 years was 5.3% (Siegel et al. 1987).

In our study the percentage of sexual encroachment in patients with schizoaffective disorder was 47% as compared with 6% in controls. Obviously, the percentage of sexual encroachment in the controls is similar to the prevalence of sexual encroachment in the general population, whereas the percentage of sexual encroachment in schizoaffective patients is far beyond what might be expected in the general population. Also, other variables concerning past and present sexual adaptation did not differ between the groups. Thus, it may be fair to say that the present data suggest that sexual encroachment may be a risk factor for the development of schizoaffective disorder.

Moreover, corporal punishment during the growing-up years was more common in patients with schizoaffective disorder as compared with the rest. Although we know that most children can adapt to a relatively wide range of child-rearing practices without developing symptoms of malfunctioning, there is also ample evidence that long-standing patterns of neglect and abuse produce lasting emotional scars on a child's development (Chamberlain 1978). Taken together, experiences of sexual encroachment and corporal punishment during the growing-up years may have a negative influence on the emotional development of the growing-up individual strong enough to contribute to schizoaffective disorder.

The sample in this study was small implying that the discussion on our data was based sometimes on tendencies. However, the inclusion of comparison control groups being part of the same sampling frame if to develop a schizoaffective disorder make it possible to elucidate if an emotional stressor found in any of the diseased groups may be associated with the disease (Lewis and Pelosi 1990). Also, reported symptom scores on CPRS were not especially high and the observed CPRS symptoms did not differ between the groups. Moreover, clinically none of the patients with schizoaffective disorder was assessed as psychotic. Thus, it is not probable that the information collected from the patients with schizoaffective disorder was distorted by their mental disease.

On the other hand, there are many fallacies, including recall errors, which may face a retrospective, descriptive study as the present one. For instance, it is possible that variables correlated with schizoaffective disorder other than those found in this study may have affected the dependent variable. Thus, the relation between schizoaffective disorder and a report of sexual encroachment during the formative years may be due to a premorbid inconspicuous personality structure more often found in patients with schizoaffective psychoses (Eggers 1986). Such a personality structure may render those patients more than normally susceptible to experience even innocent sexual acts as victimizing.

Also, besides the semi-structured interviews data were only collected from the patient's case records. Thus, the information about mental disorders in the relatives may be uncertain with respect to diagnosis.

With the above limitations, the present study gives evidence that poor parental relations, corporal violations, such as sexual encroachment, and corporal punishment in predisposed individuals may contribute to schizoaffective disorder. This is further emphasized by the lack of relationship between schizoaffective disorder and the patient's present psychosocial situation. Also, familial transmission of primarily affective mental disorder may contribute to schizoaffective disorder.

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