

Fertility in Schizophrenia in Comparison with Other Psychiatric Disorders

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This study has been done in psychiatric Inpatient Unit in Zagazig University Hospital with the aim of comparing the fertility rate between schizophrenic patients and non schizophrenic patients. A total sample of 520 psychiatric patients having diagnosis of schizophrenia (n=180), Mood disorders (n=110) and neurotic illness (n=230) according to ICD -10 diagnoses were selected. The fertility index was estimated and the Disabilities Assessment schedule was applied. The patient data were subdivided by diagnosis, gender, and family history of mental illness. The results revealed that the proportion of those ever married was markedly reduced in the schizophrenic group (F1) relative to those with mood disorders (F2) or neurotic illness (F3). Men with schizophrenia had a particularly low rate of marriage. The overall group (F1), only married men, particularly those with family history of mental disorder, produced more children than married women. So, there is evidence for increased fertility in schizophrenic men despite of decreased marital rate.

(Egypt J. Psychiat., 2000, 23 : 47-53).

INTRODUCTION

The genetic contribution to the origin of schizophrenia is now well accepted. Reproductive behavior is an important variable in the epidemiological studies of the disorder, and needs to be taken into consideration when attempting to clarify the genetic contribution to the disease. (Ritsner, et al. 1992)

The Fertility of schizophrenics has been repeatedly shown to be lower than that of patients with other psychiatric disorders, as well as of the general population. (Lane, et al, 1995).

Early researchers reported low fertility rates and reproduction among schizophrenics, that finding has been accounted for largely by fewer marriages of schizophrenics and not by lower reproductive rates within marriage. (Haverkamp, et al., 1982) & (Hilger, et al, 1983).

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Unfortunately, information from previous studies may not be applicable today because these studies did not take account over variables that might have confounded the results, such as, age of patients, severity of illness, inclusions of false positive, contraceptive usage and educational attainment.

Aim of Work: This study was carried out to compare the fertility rates between schizophrenics and other psychiatric patients in a cohort sample of patients. Also, to explore any gender effect upon the marital & fertility patterns.

SUBJECTS AND METHODS

All Consecutively admitted patients to psychiatric Inpatient Unit in Zagazig University Hospital from 1/2/1998. were identified.

Then, patients with ICD-10 diagnosis: (F1) = schizophrenia, (F2) = mood disorders, (F3) = Neurotic, stress related disorders were selected.

*Mean number of children born alive as an index of fertility was estimated for each diagnostic category.

*The Disabilities Assessment schedule (WHO, 1988), modified version was used to measure the severity of ICD-10 diagnostic criteria.

*Patient data were subdivided by diagnosis, gender, and family history of mental disorder defined for each case as history of mental disorder in a first or a second degree relative that necessitated

either inpatient or outpatient psychiatric treatment.

*Statistical evaluation of the results

RESULTS

As shown from table (1a & 1b), the overall marital rate for this group of 520 psychiatric patients was 57% (296), with 43% (93/219) of men and 67% (203/301) of women being married. Also the

Table 1 (a)
Demographic and Clinical Characteristics of the Three Groups.
(Table 1a) Mean Age among Groups:

	Schizophrenia (F1) n = 180	Mood disorders (F2) n = 110	Neurosis (F3) N=230	P
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	
Age (years)	46.1 $\pm$ 12.8	55.6 $\pm$ 14.3	46.4 $\pm$ 14.8	<0.001
-Male (married)	46.6 $\pm$ 13.6	60.2 $\pm$ 13.5	48.0 $\pm$ 14.7	<0.001
-Female (married)	45.9 $\pm$ 12.5	51.6 $\pm$ 14.1	45.8 $\pm$ 14.9	<0.001

Table 1 (b)
Comparison Among 3 Groups as Regard Marital Status and Family History

	F1		F2		F3		P
	No.	%	No.	%	No.	%	
Total number	180	100%	110	100%	230	100%	
-male	96	53.3%	48	43.6%	75	32.6%	
- Female	84	46.7%	62	56.4%	155	67.4%	
Marital status							
-Group:	110		43		71		
-Single	70	38.5	67	60.7%	159	69.3%	<0.001
- Married							
Male:							
-Single	70		25		31		
- Married	26	26.9%	23	46.7%	44	59.0%	<0.001
Female:							
-Single	40		18		40		
- Married	44	52.1%	44	71.2%	115	75.2%	<0.001
Family history							
-Group:							
-Absent	108		68		151		
-Present	72	40.2%	42	38.4%	79	34.3%	<0.001
Married men:							
-Absent	17		13		30		
-Present	9	35.1%	10	42.1%	14	31.5%	0.06
Married women:							
-Absent	25		29		75		
-Present	19	44.2%	15	34.5%	40	35.0%	0.04

percentage of ever married was significantly lower in schizophrenics (F1) than in the other two groups (F2, F3) ($\chi^2=339.6$, $df=2$, $P<0.001$). Also, as regard the gender effect, the proportion of ever married in the male schizophrenic group was significantly lower than for men in F2 & F3. ($\chi^2=179.5$, $df=2$, $P<0.001$). There was a similar pattern for women in F1, F2, & F3. However, the extent of the difference between men and women was greater in F1 than in F2 & F3, the ratio between marital rates in men and women being 0.5 in F1 group

compared with 0.66 and 0.78 in the F2 & group respectively. Also, the percentage of patients with a positive family history of mental disorder different between the three diagnostic groups. ($P<0.001$) and among married patients.

As shown from table (2), married schizophrenic patients (F1) produced on average fewer children than married patients in the other two groups (F2 & F3). ($F=15.7$, $df=2$, $P<0.001$) Also when comparison are made by group & gender, married men in the 3 groups produced indistinguishable numbers of chil-

Table 2
Mean Number of Children per Married Patient According to Diagnosis & Sex.

Sex	Diagnosis	F1	F2	F2	P
		Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	
Group		3.2 $\pm$ 2.3	4.2 $\pm$ 2.7	3.7 $\pm$ 2.5	<0.001
Male		3.8 $\pm$ 2.6	4.3 $\pm$ 2.6	3.8 $\pm$ 2.5	0.19
Female		2.8 $\pm$ 1.9	4.3 $\pm$ 2.7	3.6 $\pm$ 2.5	<0.001

Table 3
Mean Number of Children per Married Patient According to Family History & Sex in the 3 Diagnostic Group.

Family history	Sex	Males Mean $\pm$ SD	Females Mean $\pm$ SD	P
Schizophrenia (F1)				
Family history				
-Present		3.8 $\pm$ 2.3	2.7 $\pm$ 1.4	0.003
-Absent		3.7 $\pm$ 2.5	3.2 $\pm$ 2.2	0.04
Mood Disorder (F2)				
Family history				
-Present		4.5 $\pm$ 2.5	4.2 $\pm$ 2.7	0.27
-Absent		4.0 $\pm$ 2.3	4.3 $\pm$ 2.7	0.37
Mood Disorder (F3)				
Family history				
-Present		4.0 $\pm$ 2.5	3.7 $\pm$ 2.4	0.14
-Absent		3.6 $\pm$ 2.4	3.6 $\pm$ 2.4	0.62

Table 4
Mean Number of Children Born Alive by Disabilities

	No. of children Mean $\pm$ SD	P	P
Disabilities: -			
Minimum	2.87 $\pm$ 73		
-Mild	2.42 $\pm$	1.3	0.26
-Moderate	3.71 $\pm$ 105		
-Sever	3.43 $\pm$ 46		

As shown from table (4), there were no significant differences among patients with various level of disabilities as measured by Disabilities Assessment Schedule

dren, in contrary to married women with schizophrenia, who produced fewer children than married women in the other diagnostic group ($F=18.5$, $df=2$, $P<0.001$).

As shown from table (3) there were no demonstrable effects of gender or family history on the number of children per married patient within the (F2 & F3) groups.

However, significant differences existed within schizophrenic group. Marred male schizophrenic patients, both family history positive & negative, produced more children than their female counterparts, despite being slightly younger. This effect was more obvious in family history positive group ($df=59.8$, $p=0.003$), than in the negative group ($df=206$, $p=0.04$).

DISCUSSION

Historically, it has been reported that the marital & fertility rates of psychiatric patients are reduced compared with those of the general population (Slater et al, 1971).

In this study, we selected the above mentioned 3 psychiatric groups because they are the most commonly encountered patients in our clinical practice. The rationale for comparing the fertility

rates in schizophrenia with fertility rates in other psychiatric patients and not with reported fertility rates in general population is based on the following points. Firstly, schizophrenics differ from the general population in many respects. low sex drive, apathy, lack of interest, reduced marriages and disruptions of family relationships are among the factors that ought to be controlled in the general population before a faire comparison in fertility rates between schizophrenia and the general population can be made. Secondly, bias in census data is difficult to control.

In this study, in all 3 patient groups, it was observed that men married less often than did women, but the magnitude of the difference was much greater among the schizophrenic group. The men in the schizophrenic group rarely married. This result supports previous suggestions that particularly men schizophrenics are unlikely to marry (Jonnon, 1991 & Lane et al., 1995). The low marital rates reported in the present study are comparable to those reported in the early and middle parts of this century, when low marital rates in schizophrenia were thought to reflects degree of hospitalization. (Essen, 1935).

Failure to marry may reflect more the underlying schizophrenic illness with premorbid personality difficulties

and symptoms such as flattened affect and avolition Preventing the development of relationships leading to marriage. (Reichner, et al., 1989).

Also, in this study, we concentrated on the difference between the three psychiatric groups particularly the schizophrenic & neurotic groups since they are of indistinguishable age, and the profiles in each diagnostic group were found to differ in important respects. The increased number of children born to F2 group (specially manic patients) was unrelated to patient gender and family history status and F2 patients were significantly older than those in the other diagnostic groups (F1 & F3). The increased fertility in F2 group may reflect some fundamental characteristic of mania, possibly increased libido. The greater number of children born to F3 group (neurotics) showed no systematic relationship to patient gender or family history status. There appears to be only a limited genetic contribution to the aetiology of neuroses & there have been suggestion that larger families could both be symptomatic of neurotic illness and aggravate or provoke neuroses in some individuals. (Vogel, 1970).

The marital rate of the schizophrenic group was markedly reduced and the increased number of children born to (F1) married patients, as distinct from those with (F2) & (F3) illness, was related to both gender and family history. Men with schizophrenia were least likely to marry, but those marrying produced more children than did their female counterparts. Modrzewska, (1980) reported that both male & female schizophrenics tended to have larger families in a demographically similar population. The possible explanations for these findings included: firstly, factors such as increased risk of fetal and neonatal death in offspring of of schizophrenic women

but not schizophrenic men. (Nimgaonkar et al., 1997). Secondly, the influence of medication can not be excluded, but it is not clear how the use of neuroleptics could underlie specifically such a gender difference in reproduction (Lang et al., 1995). Thirdly, it has been suggested that the greater the contribution of genetic factors to schizophrenia liability, the lower is the patient's subsequent fertility. (Ritsner, et al., 1992).

The absence of long term wards, the short stay in hospital (inpatient unit in ZUH) and the significant changes in disabilities (improvements) may all indicate that our sample consisted of patients with less severe illnesses, accounting for not significant differences in fertility rates among the three groups. This is similar to that has been reported by Daradkeh, et al, (1996). However, examining the distribution of patients by disabilities on admission and the distribution of patients by ICD-10 diagnostic categories suggest that our sample consisted of patients with various diagnostic categories and with varying degrees of severity, so the above mentioned comparison is a fair one.

One of the conclusion of the present study is that the reproductivity of schizophrenics is not significantly lower than in other psychiatric patients, and this may explain the stable occurrence of schizophrenia. The limitations of our study is as follows: the sample size is relatively small and this may not give enough strength to statistical tests of inferences to yield significant differences, and the lack of significant differences in fertility rates among the three groups dose not suggest that the fertility rate in schizophrenia is lower than the rate in the general population. However the advantages are numerous. Firstly, operational diagnostic system were applied, which minimizes the inclusions of false

positive. secondly control over confounding, such as severity of illness, family history and age. Finally we believe that the potential reproductivity of schizophrenics is not at least not different from the reproductivity of patients from other diagnostic categories and the observed differences can be explained by differences in the available opportunities, frequencies of marriages and by the amount of sexual contacts regardless of the causes.

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الخصوبة فى الفصام مقارنة بأمراض نفسية أخرى

تمت هذه الدراسة بوحدة الطب النفسى بمستشفى الزقازيق الجامعى، بهدف مقارنة معدل الخصوبة فى مرضى الفصام مع مرضى غير فصامين. وأوضحت النتائج أن نسبة الزواج الدائم كانت قليلة بشكل واضح فى مجموعة المرضى الفصامين وخاصة الرجال منهم مقارنة بمجموعة المرضى الوجدانيين ومجموعة المرضى العصبيين وأيضا بمقارنة معدل الخصوبة فى الثلاث مجموعات وجد أن المرضى الرجال فقط فى المجموعة الفصامية وخاصة نوى التاريخ العائلى للمرض العقلى أنجبوا أطفالاً أكثر من المرضى النساء فى ذات المجموعة فقط، ولا توجد فروق ذات دلالة احصائية بين الثلاث مجموعات. ولذا يوجد دليل على زيادة معدل الخصوبة فى المرضى الرجال الفصامين، وبالرغم من قلة معدل الزواج.