

Birth Order and Family Size in Schizophrenia

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The relationship of birth order and family size to schizophrenia is controversial. Carmi Schooler and Bethesda(1) have shown a significant increase of schizophrenic cases among second half of the sibship or among the last borns, whereas Sundararajand and Sridhara(2) have found that the incidence of schizophrenia is higher among firstborns or in the first half of the sibship. Bary and Bary(3) on the other hand have birth order, i.e. in large families, schizophrenia is overrepresented in the second half of sibships, whereas in small families the firstborn males were significantly more prone to schizophrenia than lastborns. Again in a study carried out by Granviele-Grossman(4) using the Greenwood-Yule method, they have shown an overrepresentation in the later birth rank and lastborn position but no association was found between birth order and schizophrenia in female patients.

Here and Price(5), from their observation of a large number of Psychiatric Patients, found that the evidence for birth order factor in the schizophrenic subgroup deffered notably from other diagnostic groups; for sibships of 2-4 there was a significant difference in birth rank distribution of Schizophrenia and neurosis; the schizophrenics showed a comparative excess of cases among later birth rank, but distribution of the family size in the schizophrenic patients was parctically identical

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with that in neurotic patients; and for each of the nine cohorts the mean sibship size of schizophrenics was very similar to that of the non-schizophrenic patients.

Hinshelwood(6) compiling the published data of several authors, has investigated the incidence of the "last-but-one" position in schizophrenic samples, and had found that there was an over-representation of the "last-but-one" position in the schizophrenic sample compared to non-schizophrenics, Malzberg's sample being exception. However, one study from India(2) has shown that there were less schizophrenic patients in the "last-but-one" position, and that there is a higher incidence of illness in earlier born siblings in both sexes.

Contrasting findings in Asian and Western European countries made Barry and Barry to opine that the relationship of schizophrenia to birth position may be influenced by culture. To bring more light to the question of cultural influence, the present paper reports on an investigation on the relationship of birth rank and family size with the incidence of schizophrenia in Iranian patients.

Method

Data for this study were obtained from the case notes of patients admitted to Roozben Psychiatric Hospital, University of Tehran, from April 1970 to March 1973. During this period of time 885 cases with a final diagnosis of schizophrenia were admitted. 221 of these cases, who did not reveal adequate information, and those who were twin births and also those who were the only child were excluded. For the remaining 432 males and 212 females informations regarding the birth order and the family size were recorded.

In this study, "family size" was defined as the number of children born live to the patients' mothers, and "birth order" was defined as the patient's ordinal position among the siblings. This data, together with data on sex has been coded in families having nine sibship size or more were coded as "nine". This is not unrepresentative since the largest number of siblings to a family was eleven.

Table III

Distribution of Male Probands by Birth Order and Family Size

	1	2	3	4	5	6	7	8	9+	Total
1	12									12
2	3	11								19
3	13	16	13							42
4	18	22	18	10						48
5	17	17	9	6	15					64
6	12	8	15	10	4	11				60
7	12	18	6	12	4	4	3			59
8	8	7	5	7	6	2	3	3		41
9+	12	8	15	9	7	11	7	4	6	79
Total	112	107	81	54	36	28	13	7	6	432

* The only children excluded.

Table IV

Family Size and Halves of Families in Male Patients

Number of children (family size)	First Half	Last Half	Total
2 and 3	29	32	61
4 and over	230	141	371
Total	259	173	432

$$X^2 = 4.59, d.f = 1$$

$$P < 0.025$$

Table V

Distribution of Female Probands by Birth Order and Family Size

	1	2	3	4	5	6	7	8	9+	Total
1	8									8
2	4	7								11
3	5	7	11							23
4	6	8	8	5						27
5	10	6	5	4	7					32
6	5	4	6	5	3	5				28
7	11	9	6	6	4	3	2			41
8	3	4	4	-	3	3	-	1		18
9+	5	8	2	3	1	5	1	2	5	32
Total	57	53	42	23	18	16	3	3	5	212*

* Only children being excluded

Table VI

Family Size and Halves of Families in Female Patents

Number of children (family size)	First Half	Last Half	Total
2 and 3	12/5	21/5	34
4 and more	106	72	178
Total	118/5	93/5	212

$$X^2 = 6 \text{ d.f.} = 1$$

$$P < 0.025$$

Table VII

Birth Order	1	2	3	4	5	6	7	8	9+	Total
1	20									20
2	15	15								30
3	21/66	21/66	21/66							65
4	23/75	23/75	23/75	23/75						95
5	19/2	19/2	19/2	19/2	19/2					96
6	14/66	14/66	14/66	14/66	14/66	14/66				88
7	14/28	14/28	14/28	14/28	14/28	14/28	14/28			100
8	7/37	7/37	7/37	7/37	7/37	7/37	7/37	7/37		59
9+	12/33	12/33	12/33	12/33	12/33	12/33	12/33	12/33	12/33	111
	128/25	128/25	113/35	91/69	67/94	48/64	33/98	19/7	12/33	644*

* Expected distribution of the patients by birth order and family size (Only childrens being excluded).

Table VIII

Observed and Expected Distributions of Birth Order

	Male and Females		Male Schizophrenic		Female Schizophrenic	
	Observed	Expected	Observed	Expected	Observed	Expected
1	149	128/25	100	85/69	49	42/61
2	160	128/25	107	85/69	53	42/61
3	123	113/35	81	76/19	42	37/11
4	77	123	54	62/19	23	29/49
5	54	67/69	36	45/19	18	23/70
6	44	68/94	28	32/39	16	16/38
7	16	33/98	13	22/39	3	11/60
8	10	19/7	7	13/89	3	5/75
9	11	12/33	6	8/77	5	3/55
Total	644	644	432	432	212	212
	$X^2 = 18/23, 8 \text{ d.f.}$ 0/01 $P < 0/025$		$X^2=10/6, 8\text{d.f.}$ N.S.		$X^2=13/38. 8\text{d.f.}$ N.S.	

Table IX

Observed and Expected Distribution of Youngest and Eldest Patients for Male Female and Both Sexes:

Male Schizophrenic		Female Schizophrenic		Male and Female Schizophrenics		Birth Order
Expected (E)	Observed (O)	(E)	(O)	(E)	(O)	
85.96	100	92.61	49	128/25	149	Eldest
85.69	72	42.61	43	128/25	115	Youngest
171.38	172	85.22	92	206/50	264	Total
$\chi^2 = 4.56, 1d.f.$ N.S. 0/02 P < 0.05		$\chi^2 = 0.95, 1d.f.$ N.S.		$\chi^2 = 4.71, 1d.f.$ 0/02 P 0/05		

Table X

Comparison of Patients in Each Birth Order With Orders

Birth Order	Numbers in Each Birth Order		Other Siblings		χ^2	d. f.	P
	O	E	O	E			
1	149	128/5	495	515/75	4/18	1	0/02 P 0/05
2	160	128/25	484	515/75	9/81	1	P 0/01
3	123	113/35	521	530/65	0/99	1	N.S.
4	77	91/69	567	552/31	2/74	1	N.S.
5	54	67/94	590	576/06	3/19	1	N.S.
6	44	48/64	600	595/36	0/47	1	N.S.
7	16	33/98	628	610/02	10/03	1	P 0/01
8	10	19/70	634	624/30	4/72	1	0/02 P 0/05
9+	11	12/33	633	631/67	0.14	1	N.S.

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