Original Article

Birth Order and Psychopathology

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ABSTRACT

Context: Ordinal position the child holds within the sibling ranking of a family is related to intellectual functioning, personality, behavior, and development of psychopathology. **Aim:** To study the association between birth order and development of psychopathology in patients attending psychiatry services in a teaching hospital. **Settings and Design:** Hospital-based cross-sectional study. **Materials and Methods:** Retrospective file review of three groups of patients was carried out. Patient-related variables like age of onset, birth order, family type, and family history of mental illness were compared with psychiatry diagnosis (ICD-10) generated. **Statistical Analysis:** SPSS 13; descriptive statistics and one-way analysis of variance (ANOVA) were used. **Results:** Mean age of onset of mental illness among the adult general psychiatry patients (group I, $n = 527$) was found to be 33.01 ± 15.073, while it was 11.68 ± 4.764 among the child cases (group II, $n = 47$) and 26.74 ± 7.529 among substance abuse cases (group III, $n = 110$). Among group I patients, commonest diagnosis was depression followed by anxiety and somatoform disorders irrespective of birth order. Dissociative disorders were most prevalent in the first born child (36.7%) among group II patients. Among group III patients, alcohol dependence was maximum diagnosis in all birth orders. **Conclusions:** Depression and alcohol dependence was the commonest diagnosis in adult group irrespective of birth order.

Keywords: Birth order, depression, psychopathology

Introduction

The possibility that the ordinal position a child holds within the sibling ranking of a family may predict intellectual functioning, personality, and behavior has been the subject of extensive research.[1-3] Alfred Adler proposed the effects of birth order on human personality characteristics, which led to an increased motivation of scientists toward birth order studies.[4] Different modalities of personality and human behaviors became the focus of research which included intelligence, achievements, mental ability, sexual orientation, etc. This debate on birth order characteristics later involved psychiatric illnesses such as obsessive–compulsive disorder,[5] schizophrenia,[6-11] gender identity disorder, and somatization disorder.[12] Studies have investigated the associations between birth order and various forms of psychopathology, including depression,[13] alcohol abuse,[14] autism spectrum disorder,[15,16] anorexia nervosa,[17] delinquency,[18] and the negative effects on well-being.[19] But such association remains unclear due to lack of consideration of the confounding effects of family size.[3] In adolescence, at

age 15, significantly more girls, first borns, and children from small families had DSM-III disorders, but the interactions between them were not significant.[20] However, few studies have specifically examined the effect of birth order on young adult mental health, and the results of most of the birth order studies are contradictory and unsystematized.[14] In a comprehensive review of early studies investigating the effects of birth order, it was considered that the principal difficulties inherent in the majority of studies were the lack of adequate theoretical bases and derived explicit hypotheses.[8,9] Theoretical explanations may arise from biological factors unidentified here and/or psychological stressors linked with these positions. The influence of siblings on the socialization of the individual has been recognized as a fact by both psychology and sociology.[1] However, the significance of sibling order for the outbreak of psychiatric diseases is still discussed controversially. A recent study pointed toward the possibility that later birth order results in a more severe form of schizophrenia.[21]

Considering all the above-mentioned facts and figures, this study has been taken up with an aim to study the possible association of birth order and development of psychopathology among the patients attending the psychiatry services in a tertiary care hospital.

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Materials and Methods

Subjects and assessment

Sample

The sample comprised 684 patients divided into three groups:
- Group I: Adult general psychiatry patients (*n* = 527)
- Group II: Child cases (*n* = 47)
- Group III: Substance abuse cases (*n* = 110)

All samples were collected by retrospective file review of patients admitted or evaluated in out-patient clinic of Department of Psychiatry in Kasturba Hospital, Manipal, India, from 1st January 2007 to 31st June 2007, after getting approval from the Institutional Ethics Committee (IEC) of the hospital.

Procedure

Detailed review of patient-related variables such as age of onset of illness, order of birth, family type, family history of mental illness, and psychiatry diagnosis (ICD-10) generated were studied and compared.

Statistical analysis

SPSS software package (Version 13, SPSS Inc., Chicago, IL, USA) was used to analyze the data. Descriptive statistics and one-way analysis of variance (ANOVA) were used to evaluate the effect of birth order on psychopathology.

Results

Age of onset of mental illness

The results are provided in Table 1.

Distribution of birth order and diagnosis

Depression was the most common diagnosis among the group I patients, followed by anxiety disorder and somatoform disorder. Depression cases were most prevalent (60%) among the birth order 6. Among the group II patients, dissociative disorders were present maximum (36.4%) in the first born child. Alcohol dependence was seen maximum in group III patients irrespective of the birth order.

Influence of genders and birth order in diagnosis

Depression was more prevalent among males of birth order 4 (53.3%) and females of birth order 6 (72.7%). Dissociative disorder was more prevalent in the first order child (26.7%), with twice the prevalence in females (57.1%). Among males, birth order 2 had the highest prevalence (70.6%) of alcohol dependence.

Table 1: Age of onset of mental illness in the three groups

Groups	Age of onset (Mean ± SD*)
Group I (*n* = 527)	33.01±15.073
Group II (*n* = 47)	11.68±4.764
Group III (*n* = 110)	26.74±7.529

*SD: Standard deviation

Effect of birth order on psychopathology

Analysis by using one-way ANOVA to evaluate the effect of birth order in psychopathology did not show statistical significance.

Discussion

An attempt was made in this study to explore the possible association between birth order and psychopathology because of contrasting findings generated by research in this field. The birth order status, as an independent risk factor, has also been studied in schizophrenia population.[8] Ansari *et al.* (2008)[5] concluded that birth order 1 was strongly correlated with obsessive–compulsive disorder. The most striking finding in our study has been a uniform distribution of depression and alcohol dependence diagnosis across all birth orders in group I and group III, respectively [Table 2] with onset at fourth and third decades of life respectively [Table 1]. In contrast, Putter (2003)[13] explored the effect of birth order in adolescent depression hypothesizing that the first born would be more depressive as the parents tend to be overprotective to the first born child, but results were inconclusive. A study done by Granville-Grossman (1966)[6] showed that male (but not female) schizophrenics tend to be born late in their sibships and it was concluded that there was a causal relationship between birth order and schizophrenia in males. In our study, both males and females, with birth order 4 and 6, respectively, had a higher prevalence of depression [Table 3]. A hospital-based study, in which 1034 schizophrenics admitted in a mental hospital in India were analyzed for relation to birth order and schizophrenia, revealed that in both the sexes, the early born was affected to a significantly greater extent than the later born.[10] They suggested that in many Indian families, the early born has to shoulder the stresses and strains of family responsibilities to a large extent and this may be the contributing factor for the illness. A similar finding could not be replicated because of the descriptive nature of our study. Zahiroddin (2002)[11] concluded that schizophrenia was more prevalent among the first born children. Similarly Gordazi *et al.* (2007)[7] showed that the first born children (male and female) were most likely to be affected by schizophrenia and the first born male and the last born female were at the highest risk. The sample of children in our study consisted of all patients attending the child guidance clinic and was not restricted to schizophrenic subjects as reported by these authors and our results indicate that dissociative disorder was the most prevalent diagnosis [Table 2, group II]. We examined the association of effect of birth order and psychopathology in the three different groups using ANOVA [Table 4], but it was found to be inconclusive. The large family size in our sample population (indicating joint family in most Indian societies) and nearly equal distribution of diagnoses across the groups may have made it difficult to predict the effect of birth order on psychopathology statistically. Family structure-related factors such as birth order, family size, parental age, and age differences to siblings have been suggested as risk factors for schizophrenia,[8] but all these factors were not examined in our study due to methodological limitations. We did not use Greenwood–Yule reconstruction method for making a correction for family size as done in an earlier study[3]

Table 2: Distribution of diagnosis according to birth order

Birth order	Group I (n = 527)		Group II (n = 47)		Group III (n = 110)	
	Diagnosis	n (%)	Diagnosis	n (%)	Diagnosis	n (%)
1	Depression	33 (24.1)	Dissociation	8 (36.4)	Alcohol dependence	7 (88.9)
	Anxiety	24 (17.5)	Seizure	3 (13.6)	Alcohol + comorbid mental illness	2 (11.1)
	Somatoform	16 (11.7)	Mental retardation	2 (9.1)		
2	Depression	24 (27.6)	SLD	1 (25)	Alcohol	12 (66.7)
	Psychosis	11 (12.6)	MR	1 (25)	Tobacco	2 (11.1)
	Anxiety	9 (10.3)	Psychosis	1 (25)	Cannabis	2 (11.1)
			OCD	1 (25)		
3	Depression	18 (27.3)	Mental retardation	1 (100)	Alcohol	9 (60)
	Anxiety	11 (16.7)			Alcohol + tobacco dependence	6 (40)
	Somatoform	11 (16.7)				
4	Depression	14 (37.8)	Mood disorder	1 (100)	Alcohol + tobacco	4 (57.1)
	Anxiety	5 (13.5)			Alcohol	3 (42.9)
	Somatoform	5 (13.5)				
5	Depression	9 (39.1)	-		Alcohol	5 (62.5)
	Anxiety	3 (13)			Polysubstance use disorders	1 (12.5)
	Somatoform	5 (21.7)				
6	Depression	09 (60)	-		Alcohol + tobacco dependence	5 (100)
	Anxiety	2 (13.3)				
	Somatoform	1 (6.7)				

SLD: Specific learning disability; MR: Mental retardation; OCD: Obsessive–compulsive disorder

Table 3: Distribution of diagnosis and birth order between genders

Group	Male (n = 402)		Female (n = 282)	
	Birth order	Diagnosis (%)	Birth order	Diagnosis (%)
I (n = 527)	4	Depression (53.3)	6	Depression (72.7)
F = 263	6+	Somatoform (33.3)	6+	Somatoform (22.2)
M = 264	1	Anxiety (23.9)		
II (n = 47)	2	MR/OCD (50)	1	Dissociation (57.1)
F = 18	1	Dissociation (26.7)	2	Psychosis (50)
M = 29				
III (n = 110)	2	Alcohol dependence (70.6)	2	Cannabis dependence (100)
F = 1	6+	Comorbid mental illness (33.3)		
M = 109				

F: Female; M: Male; MR: Mental retardation; OCD: Obsessive–compulsive disorder

Table 4: Effect of birth order on psychopathology

Groups	Mean square	df	F	Significance
I	20.151	1	1.564	0.212
II	8.167	1	0.452	0.505
III	17.547	1	1.509	0.222

analyzing familial data on psychiatric patients, which may be one of the limiting factors in our study aimed to assess the effect of birth order on psychopathology. Similarly, the retrospective method of data collection in our study may not be a suitable process to avoid sampling and respondent related biases. Our endeavor of assessing birth order effects on development of psychopathology despite so many methodological shortcomings will definitely throw some light on the effect of sibship on psychopathology, helping us to look upon family-related issues during psychosocial management of any psychiatric illnesses in our practice settings. Considering the above-mentioned limiting factors, our future directions include analyzing the differential effects of single child versus multiple children in nuclear families. Additionally, researchers may like to examine the correlation of birth order and diagnosis across generations in the families to be studied. A prospective study and use reconstruction method to make corrections for the effect of family size as explained above may also be useful. In conclusion, our study has been explorative in nature and only looked at the distribution of diagnoses across birth orders and did not find a definite association of birth order and psychopathology.

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