

Seasonality of Schizophrenic Births and Age of Onset

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The purpose of the present study was to determine a possible relationship between strength of seasonality of schizophrenic births and age of onset of the disorder. It is well established that schizophrenics tend to be born in the colder months of the year (Torrey, 1980; Templer, 1982). There are negative correlations between temperature of month and number of schizophrenics born (Templer, Ruff, Halcomb, Barthlow and Ayers, 1978; Templer and Austin, 1980a). The most viable explanation for this association seems to be the "harmful influence" hypothesis of McNeil, Raff and Cromwell (1971) which contends that there are harmful effects surrounding birth or during gestation such as infection or nutritional variables. Among the more interesting specific conjectures is a slow virus suggested by Torrey and Peterson (1976). Consistent with the harmful influence hypothesis is the finding of greater seasonality over the 20th century in Europe than the United States, a phenomenon attributed by the authors to the greater prosperity and protection from the elements in the U.S. (Templer et al., 1978). On the basis of this technology-based explanation, Templer and Austin (1980b) predicted and found a decrease in the seasonality of

schizophrenic births from 1900 to 1960 in Missouri.

To further test the harmful effects hypothesis, Templer and Veleber (1982) determined that schizophrenics with presumably a greater genetic predisposition, namely hebephrenics and catatonics, displayed less seasonality than schizophrenics with lesser genetic predisposition, namely paranoid schizophrenics. Apparently with a greater genetic predisposition, less of a harmful influence is needed for the development of schizophrenia. The present study centered on age of onset, a variable that appeared associated with the catatonic/hebephrenic vs. paranoid findings. The catatonic and hebephrenic, known as "nuclear" or "kernel" schizophrenics, have an earlier age of onset, in addition to greater genetic predisposition, poorer premorbid functioning, and greater cognitive and personality deterioration than the paranoid schizophrenics. It was therefore hypothesized that age of onset would be positively associated with seasonality of schizophrenia.

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Table 1

State of Missouri — Department of Mental health
Schizophrenic Births by Age at First Admission by Month of Birth
Admissions From July 1961 Through June 1983

	JAN	FEB	MAR	APR	MAY	JUNE	JUL	AUG	SEPT	OCT	NOV	DEC
	Y											
Under 20	112	92	128	99	103	129	129	118	130	125	128	122
20-24	372	305	289	250	286	302	317	326	292	306	282	350
25-29	393	312	340	264	319	334	323	361	327	307	356	358
30-34	309	312	280	249	240	258	241	307	269	260	271	256
35 and Over	1280	1181	1202	1014	1012	1026	1081	1115	1058	1107	1096	1149
Final Total	2466	2202	2239	1876	1960	2049	2091	2227	2076	2105	2133	2235

Method and Results

The data provided by the Missouri Department of Mental Health is based upon 25,278 schizophrenic first admissions from July 1961 through June 1983. Table 1 contains the number of schizophrenic births per month as a function of the five age of first admission categories designated by the authors before examination of data — under 20, 20-24, 25-29, 30-34, and 35 and over. Age of onset was operationally defined as age of first admission although the lack of perfect correspondence between the two concepts is recognized.

The rank order correlation coefficient between rank of temperature of month and rank of number of schizophrenic births (correcting for number of days in the month) is .33 for the under 20 onset patients, -.17 for the 20-24 onset group, -.33 for the 25-29 group, -.27 for the 30-34 group, and -.61 ($p < .025$) for the over 35 group. It is apparent that the negative correlation tends to increase with age of onset. In fact, the rank order correlation between age of onset category and magnitude of negative correlations is .90 ($p < .05$).

Discussion

The etiological implications of the greater seasonality with greater age of onset are not clear. However, it would appear that the harmful influences have greatly delayed effects. Templer and Veleber (1982) suggested in connection with the greater seasonality of paranoid schizophrenia: "However, Torrey and Peterson's (1976) postulation of a slow virus could be more tenable than explanations involving malnutrition or brain trauma because of the paranoid schizophrenics' superiority over other schizophrenics in cognitive functioning.

As Torrey (1980) pointed out, viruses can alter the function of nerve cells without altering their histological structure." Even though a viral explanation must now be viewed as in the realm of conjecture, there is increasing evidence that there is a slight tendency for the characteristics of the occurring schizophrenia to be different with greater seasonality.

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