

Weather and the first episode of schizophrenia

Mohamed Z. Zawahri, PhD.

ABSTRACT

Objective: To emphasize the effect of weather on the occurrence of the first episode of Schizophrenia.

Methods: The relationship between weather and the first episode of schizophrenia was investigated at Ibn Sina Psychiatric Hospital, Damascus, Syria, from 1997 to 1999.

Results: Schizophrenia in developing countries affects men at a higher rate than women. The highest rates are found in lower socioeconomic classes, and the first

episode of the disease usually occurs in May or June, and after weather changes.

Conclusion: High temperature (equal or exceeding body temperature) is considered one of the outside factors of schizophrenia, however, as yet the etiology of the disease is still unknown.

Keywords: Schizophrenia, weather, high temperature.

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Schizophrenia is the most common psychiatric disorder or group of disorders which, affects males and females between the age of 15-35 years. Prevalence rate amongst populations of different countries and cultures varies between 0.01% to 3%. It exists more frequently in urban populations and lower socioeconomic groups. It has been found that schizophrenia usually prevails at higher rates in developing countries.¹ The following list gives us an idea about the spreading rate of this disease: for every 1000 patients, in the United States of America (USA) 7-13, Iceland 9, Denmark 7, Sudan 12, 2, Nigeria 15, Kenya 19, 1.²⁻⁴ More than 2 million persons are affected in the USA thus resulting in a total cost of 10-20 billion US\$ annually which, causes serious economical social problems.^{4,5}

Methods. Ibn Sina Psychiatric Hospital in Damascus, Syria consists of 5 sections, (one section for females and 4 sections for males) the objective of this study is to demonstrate the relationship between

weather (high temperature) and the first episode of schizophrenia in patients.

Geographic and weather data. Syria lies on the eastern coast of the Mediterranean. The total area is 185,000 square km, with a population of 17 million. The Mediterranean climate prevails a dry hot summer, and a rainy winter in December and January which are the coldest months of the year while July and August are the hottest with differences between maximum and minimum temperatures ranging from 23°C to 45°C. Temperatures could frequently drop below 10°C in winter, an easily exceed +45°C in summer. The relative humidity in summer is usually (20-50%), and could rise significantly (60-80%) in winter, this weather distinctly prevails in the city of Damascus.

Over a 3-year period (1997-1999), 368 patients reported to Ibn Sina Psychiatric Hospital, suffering from Schizophrenia. Diagnostic criteria for the disease were 1) delusion, 2) hallucinations, 3) disorganized speech, 4) grossly disorganized

From the Department of Neurology, Ibn Sina Hospital, Damascus, Syria.

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Address correspondence and reprint request to: Dr. Mohamad Z. M. Zawahri, Department of Neurology, Ibn Sina Hospital, PO Box 1706, Damascus, Syria.

Table 1 - Number of schizophrenia patients per month.

Years	Number of patients per month of the year											
	1	2	3	4	5	6	7	8	9	10	11	12
1997 (total of 86 patients)	6	4	7	6	8	10	11	7	10	7	6	4
1998 (total of 119 patients)	5	7	9	10	9	17	8	12	6	10	12	14
1999 (total of 163 patients)	14	10	13	14	20	16	12	12	17	8	17	10
All patients (368 patients)	25	21	29	30	37	43	31	31	33	25	35	28

catatonic behaviors, 5) negative symptoms DSM-IV 1995.⁵ Criteria of the diagnosis of schizophrenia requires that symptoms be present for at least 6 months.^{2,4} Patients suffering from schizophrenia for a period of one to 20 years referred to us voluntarily or brought to us by the authorities underwent the following tests: 1) computerized tomography (CT scan) or 2) magnetic resonance imaging (MRI).^{5,10}

Results. This study covers 368 schizophrenia patients (**Table 1**). Their ages varied between 18 to 35 years, the average age was 25 years. The diagnosis of schizophrenia was performed clinically and through historical evaluation of the patients as there were no pathognomonic findings. Patients suffering from schizophrenia displayed the following symptoms: The most common symptom is isolation or social draw back. They usually notice that they have lost friends, jobs, their interest and ability to perform useful work. They believe that they are confused. Their thinking and speech are vague, they may jump from one idea to another in a short time confusing their listener. The patient may have some words which may have symbolic meaning for him. They may display peculiar behavior, strange grimacing and posturing ritual behavior, aggressiveness, suspicion, variable emotion. They may consider themselves as having great power and poverty of thought. Hallucination is usually auditory as one voice or may be several voices and may be olfactory or tactile.^{6,9} Three percent of the patients are males with high education, 32% finished secondary school and 1-3 years in university, 50% have only 9 years of school or less, 15% without any education. Fifteen percent of all patients are chronic, 45% have been several times to the hospital, with only 40% for the first time.

Discussion. All patients were males, aged between 18-35 years. We treated 86 patients in 1997, 119 in 1998 and 163 in 1999. The increase of patients from year to year could be related to health

education, mental health care and increase rate of population. The highest rates of the disease were seen in the lower socioeconomic classes (65%) which, confirms our results in comparison with those from other countries.^{1,2,4,8} Forty percent of patients show complete remission of psychotic symptoms and return to social relationships to live outside the hospital the majority of the time. **Table 1** shows that 37-43 patients presented in the hottest months May and June, with temperatures exceeding 37°C, there are another 2 peaks, which indicate weather changes. This study covers 2 male sections (out of 5 sections in the hospital). Which indicate that males appear to suffer from schizophrenia at a rate higher than females. Thus confirming other scientific points of view.⁹ The hottest summer temperature (May, June) exceeding 37°C and fluctuation between day and night with unstable humidity is an important factor affecting neurochemical and neurotransmitters in the brain which are involved with dopamine and dopamine receptors in the pathophysiology of this disorder.

In conclusion, schizophrenia in developing countries affects men at a rate several times higher than woman. The highest rates are found in the lower socioeconomic classes and the first episode of the disease prevails in May or June and after weather changes. When the atmospheric temperature equals or exceeds the body temperature is seen to be one of the outside factors of schizophrenia of which the etiology is yet unknown.

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References

1. Perry W, Braff DL. Information processing deficits and thought disorder in Schizophrenia. *Am J Psychiatry* 1994; 151; 363-367.
2. Gelder M, Gath D, Mayon R, Coweys PH. *Oxford Textbook of Psychiatry* Oxford: Oxford University Press; 1996. p. 246-293.

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3. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington DC: AMA; 1996. p. 273-315.
4. Troisi A, Passini A, Bersani G, Mauro M, Ciani N. Negative symptoms and visual behavior in D.S.M. – III. R. prognostic types of Schizophrenia form disorder. *J Acta Psychiatry Scand* 1991; 83: 383-391.
5. Kaplon H, Sadock R. Synopsis of psychiatry “Schizophrenia”. Baltimore (MD): Lippincott Williams and Wilkins; 1998. p. 456-492.
6. Schooler NR. Negative Symptoms in Schizophrenia, assessment of the effect of Risperidone. *J Clin Psychiatry* 1994; 55: 22-28.
7. Kane JM. Drug therapy Schizophrenia. *New Engl J Med* 1996; 334: 34-41.
8. Murray RM. Neurodevelopment Schizophrenia the rediscovery paradox. *Br J Psychiatry* 1994; 165: 6-12.
9. World Health Organization. The ICD 10 classification of mental and behavioural disorders, clinical descriptions and diagnostic guidelines. 1992; p. 1-362.
10. Yakeley JN, Ralin M, Murray RM. Schizophrenia. *J Medicine International* 1996; 24: 6-10.