Suicide and Solar Activity linked through the Schumann Resonance Signal

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Abstract

Monthly suicide rates in a New Zealand city, Christchurch, are found to have a highly significant adaptive homeostatic relationship to the monthly sunspot number. A reasonable scientific question is "how can sunspots on the sun cause suicide on the earth?" The answer to the question is "through the Schumann Resonance signal which is modulated by the solar activity and is detected by the human brain and modulates the Melatonin output, which is related to serious depression and suicide." The Schumann Resonance signal provides a homeostatic control of brain activity. Therefore increased and decreased Schumann Resonance intensity, produced by increased and decreased solar activity, is shown to produce homeostatic relationships with cancer, cardiac, reproductive and neurological disease and mortality rates, including anxiety, depression and suicide. This study has found significant homeostatic relationships between the monthly mean sunspot number and the suicide rates in Christchurch, New Zealand. An adaptive response appears from high, middle, low and very low solar activity over the 11-year sunspot cycle from 1988 to 1998.

Introduction:

Clinical depression and suicide is strongly related to weather conditions. Seasonally Affective Disorder (SAD), is a winter time depressive disorder related to high melatonin and a low amplitude diurnal melatonin/serotonin cycle. Maximum seasonal suicide rates occur in the months with the highest sunshine hours, Petridou et al. (2002, 2002a), which is well established as it has been reported for over 100 years. This related to periods when higher sunshine intensity over longer day length periods produces much lower than average melatonin. Therefore the weather-related depression and suicide shows a homeostatic relationship between the melatonin levels and suicide. Because it has been established that S-GM Activity, through the Schumann Resonance signal mechanism, adaptively homeostatically modulates the human melatonin production, Cherry (2003), it is scientifically plausible that S-GM Activity is causally related to depression and suicide. This is confirmed by multiple published studies.

The Schumann Resonance melatonin mechanism is very well established, with the SR signal being very closely correlated with the sunspot number through the X-Ray/D-Region ionosphere physical relationship, Cherry (2002, 2003).

The sensitivity of the brain was confirmed by Selitskii, Karlov and Sorokina (1999) who, by artificially reducing GMA, were able to increase the synchronization of alpha-rhythm EEG and generalized slow-wave discharges in epileptics. This shows that increased GMA produces de-synchronization of the EEG alpha-rhythm and results in significantly more frequent convulsive seizures. Urgent hospitalization for mental disorders and suicide rise significantly with solar activity, Oraevskii et al. (1998a). Psychiatric admissions increase with solar radio flux activity ($p<0.05$) and sudden magnetic storms ($p<0.01$) and decrease with GMA ($p<0.05$), Raps, Stoupel and Shimshoni (1991). Admission for Depression increases significantly after solar storms, Kay (1994).

Tunyi and Tesarova (1991) found that suicide, sports injuries, fatal work injuries, alcoholism are more prevalent during periods of low solar activity. Stoupel et al. (1995a) found that suicide in those older than 70 years was greater during periods of low solar activity. Stoupel et al. (1995b) found on a monthly mean basis that suicide was negatively correlated ($r = -0.22$, $p=0.03$) with GMA levels. Raps, Stoupel and Shimshoni (1992) found negative correlations for psychiatric admissions between 1977 and 1987, involving 1829 patients, against sudden ionospheric disturbances ($r = -0.274$), GMA index ($r = -0.216$) and hours of positive ionization in the ionosphere ($r = -0.262$).

Both high and low GMA increases depression and suicide rates around the world.

Data set for this study:

The Christchurch Medical School supplied a suicide data set of 649 suicides in Christchurch over an 11 year period from 1988 to 1998. The rate varied from 0 to 12 per month, with a mean monthly rate of 4.92. The data was summarised to produce a monthly time series data set, which was then correlated to the monthly mean sunspot numbers.

The weekly pattern, Figure 1, shows a highest on Monday (18%) and a lowest on Thursday (10.9%).

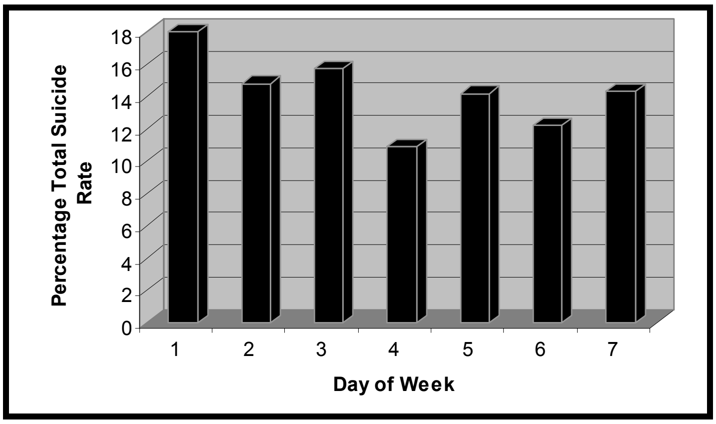

Figure 1: Daily average suicide rate % per day of the week, for Christchurch, New Zealand. Monday = Day 1, Sunday = Day 7.

The seasonal monthly suicide rate, Figure 2, shows the highest rates in the two sunny summer months, January and February, with a secondary peak in June with the shortest day lengths, and the lowest rates in March and December, seasonal transitional months.

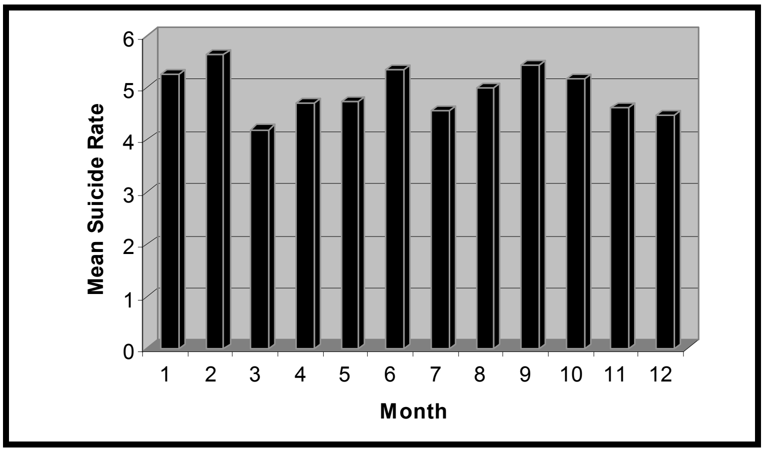

Figure 2: Daily average suicide rate per month, adjusted for days/month, for Christchurch, New Zealand.

The monthly suicide data was adjusted for the month day numbers and the monthly seasonal mean anomaly pattern as shown in Figure 2.

Suicide Rates Related to Solar Activity:

The monthly data was analysed by identifying 4 periods of consistent sunspot activity being high, middle, low and very low to seek to confirm if there is an adaptive homeostatic relationship over the 11-year solar cycle. A 17 month period centred on the 1989 sunspot maximum, August 1988 to December 1989, had sunspot numbers in the 105 to 200 range with a mean of 155. The monthly suicide rates showed a very significant homeostatic "U" curve, Figure 3.

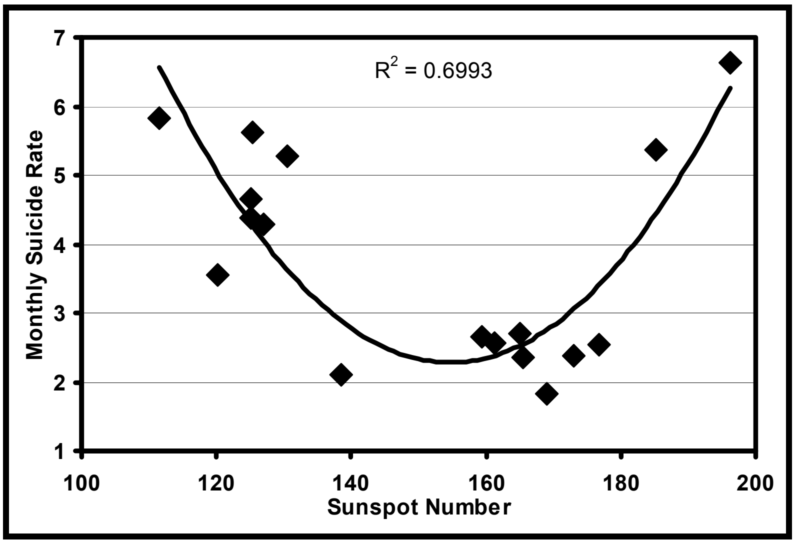

Figure 3: Homeostatic dose response relationship between monthly adjusted suicide rates in Christchurch, New Zealand, and monthly sunspot number during high solar activity, for the period August 1988 to December 1989. t=5.906, p<0.0005.

The second period had sunspot numbers in the range 20 to 95, averaging 58, August 1997 to August 1998, over a year before the 2000 sunspot maximum. It also shows that the monthly suicide rates have a very significant homeostatic "U" curve, Figure 4.

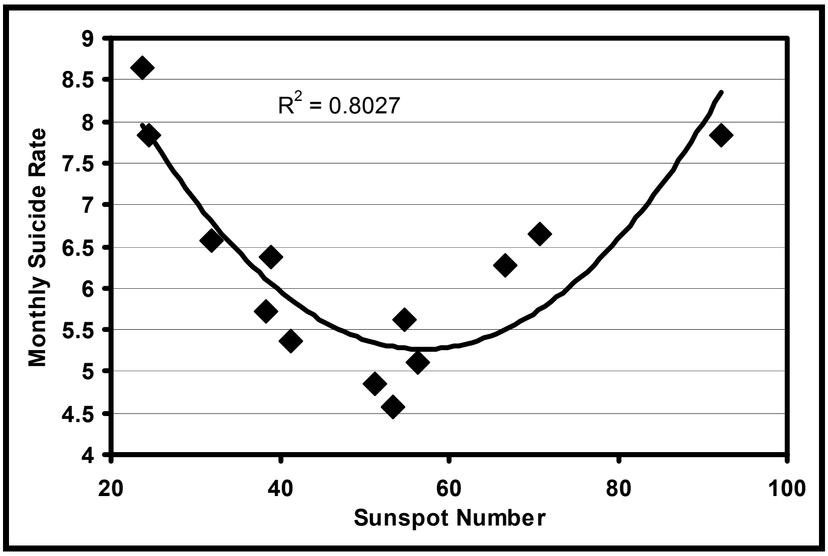

Figure 4: Homeostatic dose response relationship between monthly adjusted suicide rates in Christchurch, New Zealand, and monthly sunspot number during middle solar activity, for the period August 1997 to August 1998. t=6.690, p<0.0001.

A 29 month period approaching the sunspot minimum of 1996, August 1993 to December 1995, with sunspot numbers in the range 5 to 60, averaging 28, also has a very significant homeostatic "U" curve for the monthly suicide rates, Figure 5.

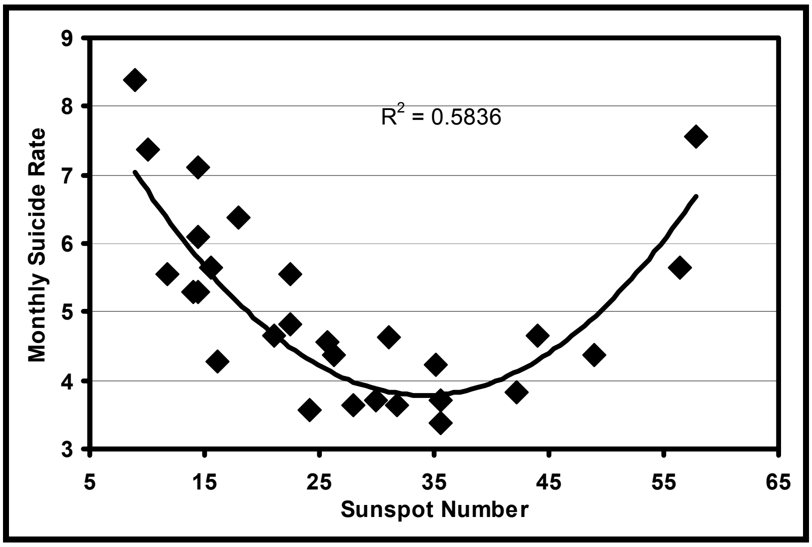

Figure 5: Homeostatic dose response relationship between monthly adjusted suicide rates in Christchurch, New Zealand, and monthly sunspot number during low solar activity, for the period August 1993 to December 1995. t=6.152, p<0.00001.

The final period of very low sunspot activity, centred on sunspot minimum of 1996, January 1996 to June 1997, has sunspot numbers in the range 0 to 20, averaging 9, also has a very significant homeostatic "U" curve for the monthly suicide rates, Figure 6.

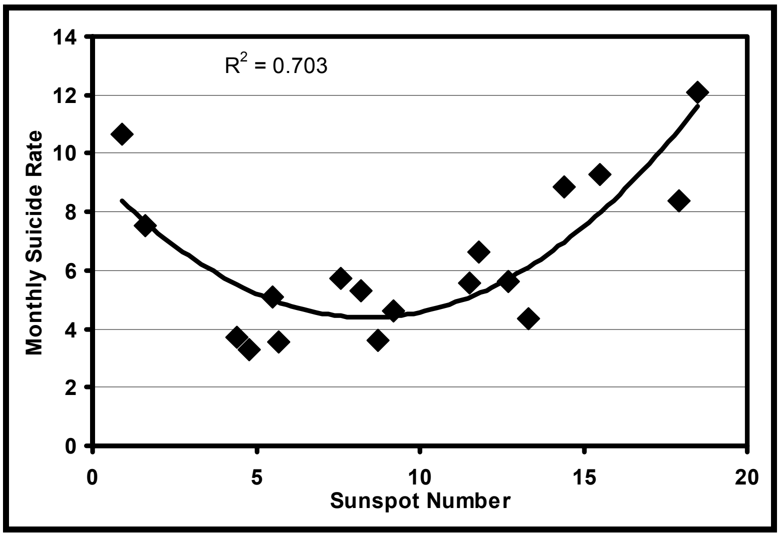

Figure 6: Homeostatic dose response relationship between monthly adjusted suicide rates in Christchurch, New Zealand, and monthly sunspot number during very low solar activity, for the period January 1996 to June 1997. t=6.154, p<0.00001.

Conclusions:

The analysis of the monthly suicide data in this study confirms the adaptive homeostatic relationship between solar activity and suicide rates, through the Schumann Resonance melatonin mechanism, just like for cardiac disease, Cherry (2003).

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