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Meteorological analysis of symptom data for people with seasonal affective disorder

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ABSTRACT

It is thought that variation in natural light levels affect people with Seasonal Affective Disorder (SAD). Several meteorological factors related to luminance can be forecast but little is known about which factors are most indicative of worsening SAD symptoms. The aim of this meteorological analysis is to determine which factors are linked to SAD symptoms. The symptoms of 291 individuals with SAD in and near Groningen have been evaluated over the period 2003 to 2009. Meteorological factors linked to periods of low natural light (sunshine, global radiation, horizontal visibility, cloud cover and mist) and others (temperature, humidity and pressure) were obtained from weather observation stations. A Bayesian zero adjusted auto-correlated multilevel Poisson model was carried out to assess which variables influence the SAD symptom score BDI-II. The outcome of the study suggests that the variable sunshine duration, for both the current and previous week, and global radiation for the previous week, are significantly linked to SAD symptoms.

Keywords: light treatment, seasonal affective disorder, weather

1. Introduction

The influence of weather conditions on general wellbeing has been reported in several studies, but there is no consistent evidence for these relationships (Barnston, 1988; Watson, 2000; Geoffrey et al., 2014). It is also difficult to distinguish between the impacts of different weather conditions on wellbeing because some of them are often highly correlated (Young et al., 1997).

Seasonal differences in hospital admissions for people with mood disorders and admissions of people with a bipolar disorder because of mania compared to depressive states as a reason for admission are described in a number of studies There is some evidence that meteorological factors trigger bipolar symptoms and that admissions of mania are related to the seasons, mostly spring or summer (Shapira et al., 2004; Volpe et al., 2009; Medici et al.,

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