

## Reading about

EDITED BY SIDNEY CROWN and ALAN LEE

### Seasonal affective disorder

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Why should psychiatrists trouble themselves to read about seasonal affective disorder (SAD)? Even if it is now recognised in DSM-IV (as recurrent depressive disorder with seasonal pattern), many psychiatrists seem to doubt its existence. Disbelievers aver that apparent winter depression is a temporal coincidence among some people with recurrent affective disorder. More ardent opponents of the diagnosis accuse psychiatrists of helping to promulgate another condition, popularised by the media, which merely adds a further weapon to the hypochondriac's armamentarium. Militant doubters, in my opinion, adopt a narrow and blinkered view; even cursory consideration of the effects of light and seasons upon the behaviour and evolution of the animal kingdom ought to moderate scepticism in even the most cynical. The central issue is surely the magnitude of such effects with regard to human well-being in the 21st century. Most of us will identify, to some degree, with the typical winter depression symptoms of fatigue, lowered motivation, hypersomnia, increased appetite and weight, irritability and reduced sociability. Most people readily accept that such seasonal changes lie along a continuum of severity, but some question whether, even at the severe end, the symptoms merit the label of 'illness'. This article is based upon the belief that they do, in that sufferers often experience very marked functional disability and the symptoms usually respond (gratifyingly) to appropriate treatments. Less altruistically, many psychiatrists living at temperate latitudes will suffer from SAD at the less severe end of the continuum, and reading about self-help strategies may make it easier for many of us to negotiate the darker months of the year more cheerfully and energetically.

### BOOKS

*Seasonal Affective Disorder: Practice and Research* (Partonen & Magnusson, 2001) is the only recent, comprehensive book on SAD written for a professional readership. Before stating my view that this is a very good book, I should declare an interest, in that I contributed one of the chapters. Among the 46 authors are the majority of the prominent researchers in the field since SAD was 'rediscovered' in the early 1980s. The first half of the book is clinically oriented, with chapters on the clinical picture, epidemiology and treatment of winter SAD. The rest of the book is targeted more at the non-clinical researcher, addressing the pathogenesis of SAD and including chapters on the photoperiod, the circadian clock, photobiology, melatonin, genetic influences, sleep and the weather. Most psychiatrists will probably dip in and out of these more biological chapters, but should find some intriguing facts and insights. The book was positively appraised by a (sceptical) *BMJ* reviewer and, while it is quite expensive at £59.50, there should be a place for it in good psychiatric libraries.

The outstanding book for SAD sufferers and non-clinicians is *Winter Blues* by Norman Rosenthal, the latest edition of which was published in 1998. Rosenthal is often regarded as something of a father figure among SAD researchers and clinicians and *Winter Blues* contains a wealth of insight and experience. It is also clearly and interestingly written and most psychiatrists should enjoy it. The SAD Association is a well-organised, well-informed, self-help group which produces useful and sensible literature for sufferers. This includes the short and snappy *Little SAD Book* (SAD Association, 1999) which comes as part of a more comprehensive information pack. The SAD Association can be contacted at

PO Box 989, Steyning, BN44 3HG or at <http://www.sada.org.uk>.

### HISTORICAL ASPECTS

Wehr's (1989) contribution in *Seasonal Affective Disorders and Phototherapy* is the best historical review of SAD I have read. In the relatively new field of SAD research, this chapter has, predictably, aged better than others in the book. In a comprehensive account that draws on the writings of Hippocrates and Aristotle, among many others, we are reminded that there is little new under the sun, with a quote from Aretaeus who advised in the second century that 'lethargics are to be laid in the light, and exposed to the rays of the sun (for the disease is gloom)'. Perhaps more accessible is the paper by Wehr & Rosenthal (1989). This is a wide-ranging review of the association between seasonality and affective disorders in which the intermingling of historical and more contemporary views is fascinating.

### CLINICAL OVERVIEWS

Arguably, Rosenthal *et al*'s (1984) paper is the most appropriate starting point for those wishing to read about SAD. This publication heralds the 'rediscovery' of SAD in 29 patients, describes their symptom profiles and the effects of bright artificial light on 11 of them. Subsequent work stemmed from this classic paper. Among more recent publications, I know of no better overview for the busy doctor of the diagnosis and management of SAD than that written by Lam (1998).

### EPIDEMIOLOGY

Research into the epidemiology of SAD is bedevilled by inconsistent diagnostic criteria and an over-reliance on the Seasonal Pattern Assessment Questionnaire (SPAQ), which is a rather over-inclusive screening instrument. However, there is little dispute that it is most common among

women in their childbearing years. The paper by Rosen *et al* (1990) is something of a classic, finding an increasing community prevalence of SAD across four locations, moving progressively north up the east coast of the USA from Florida to New Hampshire. More recently, Mersch *et al* (1999) have reviewed the relationship between SAD and latitude of residence. Perhaps surprisingly, this relationship exists in North American studies, but not in European ones; the reasons for this are likely to be complex. SAD occurs in children, and the best epidemiological study in this area is probably that of Swedo *et al* (1995). Her group screened nearly 2000 children, confirming that after puberty there is a divergence in the rates of SAD occurrence in males and females. Magnusson (2000) has published a comprehensive review article on the epidemiology of SAD.

## COMORBIDITY

Comorbidity has been reported between SAD and several other conditions including panic disorder, social phobia, bulimia nervosa, chronic fatigue and premenstrual syndrome. The common link is likely to be serotonergic dysregulation, although evidence is growing that noradrenergic mechanisms are also of importance in SAD (Neumeister *et al*, 1998). The only review of comorbidity with SAD that I have seen is by Reichborn-Kjennerud; unfortunately it is a chapter in *Seasonal Affective Disorder* (Partonen & Magnusson, 2001), but fortunately it is a good one. Comorbid links are probably best established with bulimia nervosa, which can be a strikingly seasonal phenomenon (Blouin *et al*, 1992) and, when it is, light therapy can be helpful (Braun *et al*, 1999).

## BIOLOGY/PHYSIOLOGY

The pathophysiology of SAD is complex and intriguing. Papers on the topic range widely from very broad perspectives, such as the evolution of mammalian fertility, to the much more specific, such as neurotransmitter function. Under such circumstances, most readers will prefer recent review articles, of which I would recommend two. Lam & Levitan (2000) cover issues relating to circadian phase shift, photoperiod and melatonin, genetics and the putative role of neurotransmitters.

They list 139 references. Wehr (2001) lists nearly as many (123) in his more 'basic science' review of photoperiodism in humans and other primates. Mammals use changes in day length to detect seasonal changes, which in turn regulate seasonal behaviours, largely through the duration of nocturnal melatonin secretion. A recent paper by Dr Wehr's group (Wehr *et al*, 2001) suggests that SAD sufferers may be closer to their mammalian roots than others; while healthy volunteers showed no seasonal change, the nocturnal melatonin secretion of patients with SAD was longer in winter than in summer.

## LIGHT THERAPY

Almost without doubt, there is sufficient research evidence to support the efficacy of light therapy in winter depression. The sliver of doubt relates to the difficulty in finding a credible placebo treatment for knowledgeable, self-diagnosed sufferers presenting at specialist tertiary centres. The most compelling evidence, therefore, emanates from trials that have found bright light to be more effective when administered in the morning than in the evening (Lewy *et al*, 1998). As Lewy *et al* (1998) explain, this finding supports the theory that SAD sufferers have circadian phase delay, bright morning light effecting a phase advance which is thought to be the key to the efficacy of light therapy (Terman *et al*, 2001). There is growing evidence that a similar effect can be produced by dawn-simulating alarm clocks whose illuminance gradually increases over a 30 to 90 minute period while the patient remains asleep, prior to their usual awakening time. The best paper published recently on this topic is by Avery *et al* (2001a). They found that dawn-simulating alarm clocks not only out-performed dim red placebo alarm clocks, but patients also did better than those allocated to 30 minutes of bright early morning light with a standard light box. They wondered whether this related to treatment adherence and, certainly, 30 minutes of morning light therapy often does not fit readily into the schedule of a busy person with hypersomnia.

Antidepressants are widely used in the treatment of SAD, although the evidence base for their efficacy is minimal. Their effectiveness needs to be researched in comparison with light therapy. Meanwhile, we do have a few clues (if not yet enough)

as to which patients are more likely to fare well with light therapy. Patients who feel worse in the mornings (Graw *et al*, 1991) or who eat a lot of sweets late in the day (Krauchi *et al*, 1993) may do better. Patients who report an incomplete summer remission tend to do less well (Lingjaerde & Regine Foreland, 1999).

## 'NORMAL' SAD SUFFERERS

As mentioned above, symptoms of winter depression lie along a severity continuum, so that it is normal to be affected by typical symptoms to some degree. It is probably because psychiatric in-patients also lie along this continuum, rather than because the diagnosis of SAD is often missed (although it may well be), that researchers in Canada found that patients suffering from depression who were admitted to sunny rooms had shorter lengths of stay than those situated in dull rooms (Beauchemin & Hays, 1996). Health service planners should also take an interest in the potential effects of light upon the workforce. Office workers in Finland, who received light therapy for half the time from November to February, experienced improved mood and vitality when using a light box, whether or not they rated themselves as having seasonal changes in well-being (Partonen & Lönnqvist, 2000). Partly because of the inconvenience of using a light box at home, Avery *et al* (2001b) administered light therapy in the workplace to 30 people who were mildly affected with SAD and found that it improved mood, energy, alertness and productivity. Exercise is the other health-promoting activity for people exhibiting SAD symptoms. Partonen *et al* (1998) randomised 120 indoor employees to fitness training in bright light, to fitness training at ordinary light levels or to relaxation training. Both fitness groups improved in terms of vitality, and those exercising in bright light experienced superior improvement in mood. Exercise and light exposure can be combined, of course, by walking outside. Wirz-Justice *et al* (1996) found improvement in SAD sufferers after only one week of outdoor walks for an hour each morning. Psychiatrists, for their own benefit as much as that of their patients, may thus wish to read more about the therapeutic effects of winter light and exercise.

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## REFERENCES

- Avery, D. H., Eder, D. N., Bolte, M. A., et al (2001a)** Dawn simulation and bright light in the treatment of SAD: a controlled study. *Biological Psychiatry*, **50**, 205–216.
- , **Kizer, D., Bolte, M. A., et al (2001b)** Bright light therapy of subsyndromal seasonal affective disorder in the workplace: morning vs. afternoon exposure. *Acta Psychiatrica Scandinavica*, **103**, 267–274.
- Beauchemin, K. M. & Hays, P. (1996)** Sunny hospital rooms expedite recovery from severe and refractory depression. *Journal of Affective Disorders*, **40**, 49–51.
- Blouin, A., Blouin, J., Aubin, P., et al (1992)** Seasonal patterns of bulimia nervosa. *American Journal of Psychiatry*, **149**, 73–81.
- Braun, D. L., Sunday, S. R., Fornari, V. M., et al (1999)** Bright light therapy decreases winter binge frequency in women with bulimia nervosa: a double-blind, placebo-controlled study. *Comprehensive Psychiatry*, **40**, 442–448.
- Graw, P., Krauchi, K., Wirz-Justice, A., et al (1991)** Diurnal variation of symptoms in seasonal affective disorder. *Psychiatry Research*, **37**, 105–111.
- Krauchi, K., Wirz-Justice, A. & Graw, P. (1993)** High intake of sweets late in the day predicts a rapid and persistent response to light therapy. *Psychiatry Research*, **46**, 107–117.
- Lam, R. W. (1998)** Seasonal affective disorder: diagnosis and management. *Primary Care Psychiatry*, **4**, 63–74.
- & **Levitan, R. D. (2000)** Pathophysiology of seasonal affective disorder: a review. *Journal of Psychiatry & Neuroscience*, **25**, 469–480.
- Lewy, A. J., Bauer, V. K., Cutler, N. L., et al (1998)** Morning vs evening light treatment of patients with winter depression. *Archives of General Psychiatry*, **55**, 890–896.
- Lingjaerde, O. & Regine Foreland, A. (1999)** Characteristics of patients with otherwise typical winter depression, but with incomplete summer remission. *Journal of Affective Disorders*, **53**, 91–94.
- Magnusson, A. (2000)** An overview of epidemiological studies on seasonal affective disorder. *Acta Psychiatrica Scandinavica*, **101**, 176–184.
- Mersch, P. P. A., Middendorp, H. M., Bouhuys, A. L., et al (1999)** Seasonal affective disorder and latitude: a review of the literature. *Journal of Affective Disorders*, **53**, 35–48.
- Neumeister, A., Turner, E. H., Matthews, J. R., et al (1998)** Effects of tryptophan depletion vs catecholamine depletion in patients with seasonal affective disorder in remission with light therapy. *Archives of General Psychiatry*, **55**, 524–530.
- Partonen, T., Leppamaki, S., Hurme, J., et al (1998)** Randomized trial of physical exercise alone or combined with bright light on mood and health-related quality of life. *Psychological Medicine*, **28**, 1359–1364.
- & **Lönnqvist, J. (2000)** Bright light improves vitality and alleviates distress in healthy people. *Journal of Affective Disorders*, **57**, 55–61.
- & **Magnusson, A. (eds) (2001)** *Seasonal Affective Disorder: Practice and Research*. Oxford: Oxford University Press.
- Rosen, L. N., Targum, S. D., Terman, M., et al (1990)** Prevalence of seasonal affective disorder at four latitudes. *Psychiatry Research*, **31**, 131–144.
- Rosenthal, N. E. (1998)** *Winter Blues – Seasonal Affective Disorder: What it is and How to Overcome It*. New York: Guilford Press.
- , **Sack, D. A. & Gillin, J. C. (1984)** Seasonal affective disorder: A description of the syndrome and preliminary findings with light therapy. *Archives of General Psychiatry*, **41**, 72–80.
- SAD Association (1999)** *The Little SAD book*. Steyning: SADA Publications.
- Swedo, S. E., Pleeter, J. D., Richter, D. M., et al (1995)** Rates of seasonal affective disorder in children and adolescents. *American Journal of Psychiatry*, **152**, 1016–1019.
- Terman, J. S., Terman, M., Lo, E. S., et al (2001)** Circadian time of morning light administration and therapeutic response in winter depression. *Archives of General Psychiatry*, **58**, 69–75.
- Wehr, T. A. (1989)** Seasonal affective disorder: a historical overview. In *Seasonal Affective Disorders and Phototherapy* (eds N. E. Rosenthal & M. C. Blehar), pp. 11–32. New York: Guilford Press.
- (2001) Photoperiodism in humans and other primates: evidence and implications. *Journal of Biological Rhythms*, **16**, 348–364.
- , **Duncan W. C. Jr, Sher, L., et al (2001)** A circadian signal of change of season in patients with seasonal affective disorder. *Archives of General Psychiatry*, **58**, 1108–1114.
- & **Rosenthal, N. E. (1989)** Seasonality and affective illness. *American Journal of Psychiatry*, **146**, 829–839.
- Wirz-Justice, A., Graw, P., Krauchi, K., et al (1996)** 'Natural' light treatment of seasonal affective disorder. *Journal of Affective Disorders*, **37**, 109–120.

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