



Sleep Disturbance Trajectories and Relapse Risk in Early-Course Bipolar Disorder: A Review of the Evidence

Haruka Pereira^{1*}, Omar Bekele², Shanice Roy³

¹Department of Medical Sciences, Levantine Research Institute of Medical Sciences, Barbados

²Department of Medical Sciences, Siberian Institute of Medical Sciences, Slovakia

³Department of Medical Sciences, Skagerrak School of Medical Sciences, Bahrain

Article Info

Volume 1, Issue 1, 2026

doi: [10.62715/ijp.2026.v1.i1.pp1-6](https://doi.org/10.62715/ijp.2026.v1.i1.pp1-6)

Received: 13 February 2026

Accepted: 09 April 2026

Published: 27 May 2026

Abstract

Disturbed sleep is among the most consistent features of bipolar disorder. It appears in the diagnostic criteria for mania and depression, it is the most commonly reported early warning sign of mania, and it persists in many people between episodes. This narrative review examines what the published literature says about sleep disturbance as a marker of, and possible contributor to, relapse in the first years after onset. It covers the form sleep problems take across mood states, the prospective and experimental evidence that links sleep loss to manic recurrence and persistent insomnia or hypersomnia to depressive recurrence, the theoretical accounts that connect sleep, circadian timing and social routine, and the methods used to measure sleep over time. The review finds that the association between sleep and relapse is well supported, that the direction of effect is partly but not fully established, and that few studies have followed sleep repeatedly in early-course samples, so the idea of distinct sleep trajectories remains more a research proposal than a demonstrated fact. Psychological treatments that stabilise sleep and daily rhythm show promise, although trials are small. The article closes with the questions that longitudinal work in early illness would need to answer.

Keywords: *Bipolar disorder, Sleep disturbance, Relapse, Circadian rhythm, Early intervention, Actigraphy*

© 2026 Haruka Pereira et al. This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

1. Introduction

Bipolar disorder usually declares itself in adolescence or early adulthood, and the years that follow the first clear episode carry a high risk of recurrence. Staging models describe this period as the point at which the course of the illness may still be open to influence, before repeated episodes bring cumulative functional loss (Berk et al., 2017). That view owes much to the older kindling hypothesis, which held that early episodes are closely tied to stressors and that later ones arise with less provocation (Post, 1992).

Sleep has an obvious claim to attention in this search for early indicators. A decreased need for sleep is a criterion symptom of mania, insomnia or hypersomnia is a criterion symptom of depression, and sleep complaints do not disappear when mood returns to normal. Two influential reviews drew these strands

* Corresponding author: Haruka Pereira, Department of Medical Sciences, Levantine Research Institute of Medical Sciences, Barbados. E-mail: haruka.pereira@levantine.edu

© 2026 Haruka Pereira et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

together and argued that sleep and circadian disturbance should be treated as a core feature of the disorder instead of a by-product of mood episodes (Harvey, 2008; Plante and Winkelman, 2008). Current treatment guidelines reflect the same position and recommend attention to sleep and regular routines as part of maintenance care (Yatham et al., 2018).

This article reviews the published evidence on sleep disturbance and relapse with the early course specifically in mind. It asks three things: what is known about how sleep behaves across mood states and in remission, how strong the case is that sleep change precedes and contributes to relapse, and whether the notion of a sleep trajectory, a pattern of change over months or years that differs between people and predicts outcome, is supported by data or remains a hypothesis.

2. Scope and Approach

This is a narrative review of the published literature. It draws on prospective cohort studies, experimental work on sleep deprivation, meta-analyses of sleep in remitted bipolar disorder, treatment trials and theoretical papers that are widely cited in the field. It was not conducted as a systematic review, and no claim is made that every relevant study has been identified. The article reports no new data, and where the literature is thin or inconsistent this is stated.

3. Sleep Across Mood States and in Remission

The forms that sleep disturbance takes in bipolar disorder differ by mood state. In mania the characteristic change is a reduced need for sleep: the person sleeps little and does not feel tired. In bipolar depression insomnia is common, but so is hypersomnia, which appears to be more frequent in bipolar than in unipolar depression and has been less studied than its clinical weight deserves (Kaplan and Harvey, 2009).

The more striking observation is that sleep often stays abnormal between episodes. A meta-analysis of studies in inter-episode bipolar disorder and in high-risk groups found longer sleep onset latency, more time awake after sleep onset and greater variability of sleep-wake timing in patients than in healthy comparison groups (Ng et al., 2015). A second meta-analysis restricted to actigraphy studies of remitted patients reached a similar conclusion, with longer sleep duration and poorer sleep efficiency among patients (Geoffroy et al., 2015). Clinical cohort work shows that a substantial share of people who meet criteria for euthymia still report disturbed sleep (Sylvia et al., 2012). Sleep disturbance is therefore not confined to episodes; for many patients it is a standing feature of the illness.

4. Evidence That Sleep Change Precedes Relapse

Four kinds of evidence bear on the claim that sleep disturbance signals or drives relapse, and they differ in what they can show. Table 1 summarises them with representative sources.

4.1. Prodromes and prospective observation

Studies of prodromes ask patients, and sometimes relatives, what they noticed before an episode. A systematic review of this literature found that sleep disturbance was the most frequently reported early sign of mania and one of the more common early signs of bipolar depression (Jackson et al., 2003). A later systematic review that focused on the period before the first episode reached a more cautious conclusion: disturbed sleep is common before onset, but it is also common in young people who never develop bipolar disorder, so its specificity as an early marker is low (Ritter et al., 2011).

Prospective designs avoid the problem of recall. In a study that used daily electronic self-ratings, a change in sleep or bed rest was followed by a change in mood in the opposite direction, typically on the next day (Bauer et al., 2006). Cohort studies have reported that shorter sleep duration predicts later depressive symptoms (Perlman et al., 2006) and that sleep problems are associated with more severe symptoms and poorer functioning across follow-up (Gruber et al., 2011). Work that tested both directions found evidence for each: poor sleep was followed by worse mood, and worse mood by poor sleep (Talbot et al., 2012). The picture that emerges is of a reciprocal relationship, not a simple one-way cause.

Table 1: Lines of evidence linking sleep disturbance to relapse in bipolar disorder

Line of evidence	What it shows	Main limitation	Representative source
Prodrome studies	Sleep change is the most common early sign of mania	Largely retrospective recall	Jackson et al., 2003
Daily self-monitoring	Change in sleep duration tends to come before mood change	Self-report; selected, adherent samples	Bauer et al., 2006
Prospective cohorts	Short or poor sleep predicts later symptoms	Residual mood symptoms may confound	Perlman et al., 2006
Sleep deprivation	Imposed sleep loss can trigger a switch into mania	Short term; depressed inpatients	Colombo et al., 1999
Life events research	Events that disrupt routine precede manic onsets	Sleep itself not measured directly	Malkoff-Schwartz et al., 1998
Sleep-focused treatment	Treating insomnia may reduce relapse	Small pilot trial	Harvey et al., 2015

4.2. Experimental and quasi-experimental evidence

The strongest support for a causal role comes from sleep deprivation. Wehr and colleagues proposed that sleep reduction is a final common pathway through which varied triggers, from travel across time zones to bereavement and drug effects, lead to mania ([Wehr et al., 1987](#)). Therapeutic sleep deprivation, used as a treatment for depression, offers a partial test, and a minority of patients with bipolar depression switch into hypomania or mania after it ([Colombo et al., 1999](#)). Life events research adds indirect support. Events that disrupt daily routine, as distinct from events that are merely distressing, were found to be more common in the weeks before manic episodes than before depressive ones ([Malkoff-Schwartz et al., 1998](#)).

These findings concern mania more than depression. For depressive relapse the evidence is correlational: persistent insomnia or hypersomnia in remission goes with a higher likelihood of later depressive symptoms, but no experimental manipulation comparable to sleep deprivation is available, and residual depressive symptoms may account for part of the association.

5. Explanatory Models

Three accounts are used to explain why sleep and relapse are linked, and they are compatible with one another. The first is the sleep reduction hypothesis already described, in which lost sleep raises mood and energy, which in turn reduces sleep further ([Wehr et al., 1987](#)). The second is the social zeitgeber theory, which holds that regular social routines such as mealtimes, work and contact with others entrain biological rhythms, and that losing those routines destabilises rhythms and precipitates episodes in vulnerable people ([Ehlers et al., 1988](#)). The third draws on the two-process model of sleep regulation, in which sleep timing reflects the interaction of a homeostatic sleep drive with a circadian process ([Borbély, 1982](#)), and proposes that one or both processes are less stable in bipolar disorder ([Harvey, 2008](#)).

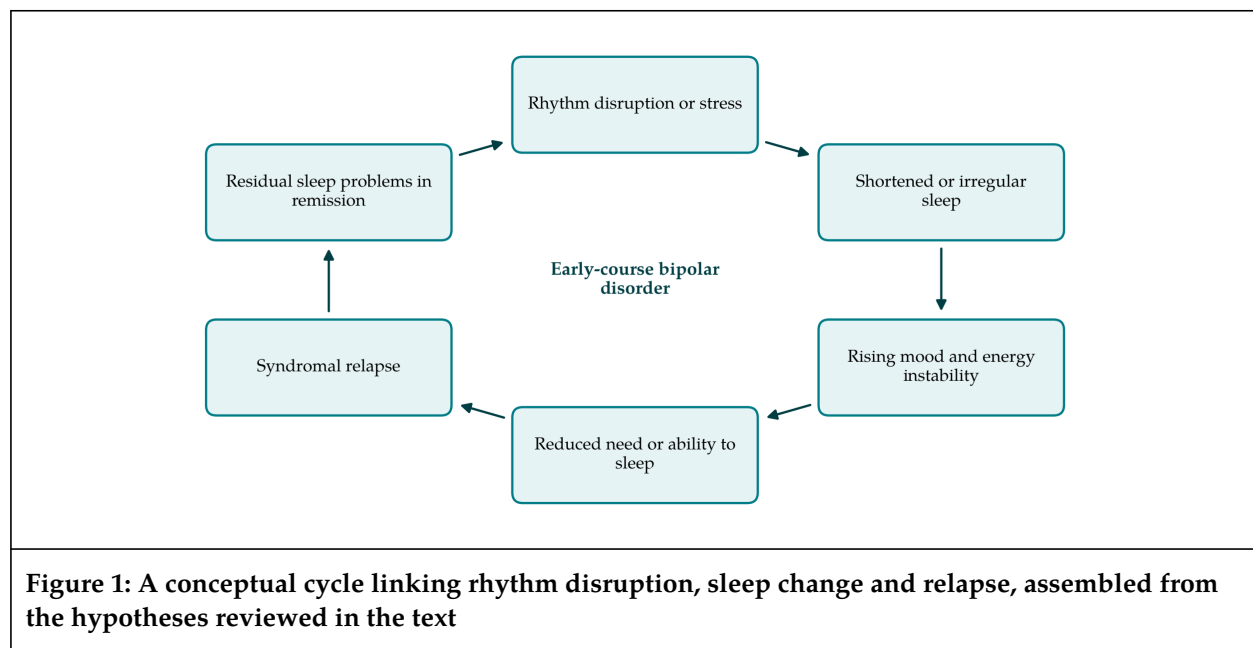
Figure 1 combines these accounts into a single cycle as it might operate in the early course. The diagram is a conceptual summary of the hypotheses in the literature and not a tested model.

6. From Single Measurements to Trajectories

Most studies cited so far measured sleep once, or averaged it over a short baseline, and related it to later outcome. A trajectory approach asks something different: whether the pattern of sleep over time, such as steadily worsening regularity or failure of sleep to normalise after an episode, carries prognostic information beyond a single reading. Statistical tools suited to the question exist, including growth mixture and group-based trajectory models. Their application to repeated sleep measures in early-course

samples is, on the evidence available to this review, sparse. The term sleep trajectory should therefore be read as a description of a research aim.

Measurement is part of the difficulty. Sleep diaries and questionnaires such as the Pittsburgh Sleep Quality Index are inexpensive and capture the person's experience of sleep (Buysse *et al.*, 1989), but they depend on recall and may be coloured by mood. Actigraphy provides an objective estimate of rest and activity over weeks and suits long follow-up, though it infers sleep from movement and can misclassify quiet wakefulness (Ancoli-Israel *et al.*, 2003). Studies that combine subjective and objective measures often find that they disagree, and it is not yet clear which is the better predictor of relapse.



Early-course samples raise problems of their own. Diagnosis is less certain in the first years, and some people first seen with depression will later be reclassified. Medication is frequently changed, and several commonly used agents alter sleep directly. Substance use, shift work and the irregular schedules of student life are common at the age of onset and affect sleep independently of the illness.

7. Implications for Treatment

If sleep disturbance contributes to relapse, treating it should reduce relapse. Interpersonal and social rhythm therapy was designed around the social zeitgeber theory and teaches patients to keep regular times for sleep, waking, meals and activity. In a randomised trial in bipolar I disorder, patients who received it during acute treatment remained well for longer during maintenance, and the benefit was related to the increase in regularity of their routines (Frank *et al.*, 2005). A pilot randomised trial of cognitive behavioural therapy for insomnia modified for bipolar disorder reported better sleep and a lower rate of mood relapse than a psychoeducation comparison (Harvey *et al.*, 2015). Both findings are encouraging. Neither trial was confined to early-course patients, and the second was small by design.

Guidelines accordingly recommend psychoeducation that includes monitoring of sleep and early warning signs, and they regard structured psychological treatments as adjuncts to medication, not substitutes (Yatham *et al.*, 2018). Standard sleep restriction, a component of insomnia therapy, deliberately shortens time in bed, and in bipolar disorder the procedure is modified so that sleep opportunity is not reduced to a level that could provoke hypomania. Decisions about hypnotic or sedating medication belong with the treating clinician and are outside the scope of this review.

8. Gaps and Directions for Research

Several gaps follow from the material reviewed. The first is the shortage of longitudinal studies that begin at or near the first episode and measure sleep repeatedly with both subjective and objective methods. The

second is specificity: disturbed sleep is common in young people with many conditions, and a marker that predicts relapse in bipolar disorder needs to be distinguished from general distress. The third is polarity. The case for sleep loss as a trigger of mania is much stronger than the case for any particular sleep pattern as a trigger of depression, yet depressive episodes account for most of the time spent unwell.

A further gap concerns mechanism. It is not known whether stabilising sleep prevents relapse because sleep is causal, or because people who can keep regular hours differ in other ways that protect them. Trials that randomise a sleep-focused treatment and measure both sleep and relapse, with analysis of whether change in sleep accounts for the effect, would speak to this directly.

9. Conclusion

Sleep disturbance is a consistent companion of bipolar disorder in episodes and between them, and the evidence that shortened sleep can precede and provoke mania is among the better established findings in the field. For depressive relapse and for the early course in particular the evidence is thinner and mostly correlational. The concept of sleep trajectories is plausible and testable, but it has not yet been shown that patterns of sleep over time identify those at highest risk. Until such work is done, the practical position supported by the literature is modest: sleep should be asked about routinely, changes in sleep should be treated as possible early warning signs, and regular routines are worth protecting.

Conflict of interest

To be declared by the author(s) before publication.

Funding

To be declared by the author(s) before publication.

References

- Ancoli-Israel, S., Cole, R., Alessi, C., Chambers, M., Moorcroft, W. and Pollak, C.P. (2003). [The role of actigraphy in the study of sleep and circadian rhythms.](#) *Sleep*, 26(3): 342-392.
- Bauer, M., Grof, P., Rasgon, N., Bschor, T., Glenn, T. and Whybrow, P.C. (2006). [Temporal relation between sleep and mood in patients with bipolar disorder.](#) *Bipolar Disorders*, 8(2): 160-167.
- Berk, M., Post, R., Ratheesh, A., Gliddon, E., Singh, A., Vieta, E. et al. (2017). [Staging in bipolar disorder: From theoretical framework to clinical utility.](#) *World Psychiatry*, 16(3): 236-244.
- Borbély, A.A. (1982). [A two process model of sleep regulation.](#) *Human Neurobiology*, 1(3): 195-204.
- Buysse, D.J., Reynolds, C.F., Monk, T.H., Berman, S.R. and Kupfer, D.J. (1989). [The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research.](#) *Psychiatry Research*, 28(2): 193-213. [https://doi.org/10.1016/0165-1781\(89\)90047-4](https://doi.org/10.1016/0165-1781(89)90047-4)
- Colombo, C., Benedetti, F., Barbini, B., Campori, E. and Smeraldi, E. (1999). [Rate of switch from depression into mania after therapeutic sleep deprivation in bipolar depression.](#) *Psychiatry Research*, 86(3): 267-270.
- Ehlers, C.L., Frank, E. and Kupfer, D.J. (1988). [Social zeitgebers and biological rhythms: A unified approach to understanding the etiology of depression.](#) *Archives of General Psychiatry*, 45(10): 948-952.
- Frank, E., Kupfer, D.J., Thase, M.E., Mallinger, A.G., Swartz, H.A., Fagioli, A.M. et al. (2005). [Two-year outcomes for interpersonal and social rhythm therapy in individuals with bipolar I disorder.](#) *Archives of General Psychiatry*, 62(9): 996-1004. <https://doi.org/10.1001/archpsyc.62.9.996>
- Geoffroy, P.A., Scott, J., Boudebesse, C., Lajnef, M., Henry, C., Leboyer, M. et al. (2015). [Sleep in patients with remitted bipolar disorders: A meta-analysis of actigraphy studies.](#) *Acta Psychiatrica Scandinavica*, 131(2): 89-99. <https://doi.org/10.1111/acps.12367>
- Gruber, J., Miklowitz, D.J., Harvey, A.G., Frank, E., Kupfer, D., Thase, M.E. et al. (2011). [Sleep matters: Sleep functioning and course of illness in bipolar disorder.](#) *Journal of Affective Disorders*, 134(1-3):

416-420.

- Harvey, A.G. (2008). [Sleep and circadian rhythms in bipolar disorder: Seeking synchrony, harmony, and regulation.](#) *American Journal of Psychiatry*, 165(7): 820-829.
<https://doi.org/10.1176/appi.ajp.2008.08010098>
- Harvey, A.G., Soehner, A.M., Kaplan, K.A., Hein, K., Lee, J., Kanady, J. et al. (2015). [Treating insomnia improves mood state, sleep, and functioning in bipolar disorder: A pilot randomized controlled trial.](#) *Journal of Consulting and Clinical Psychology*, 83(3): 564-577. <https://doi.org/10.1037/a0038655>
- Jackson, A., Cavanagh, J. and Scott, J. (2003). [A systematic review of manic and depressive prodromes.](#) *Journal of Affective Disorders*, 74(3): 209-217. [https://doi.org/10.1016/S0165-0327\(02\)00266-5](https://doi.org/10.1016/S0165-0327(02)00266-5)
- Kaplan, K.A. and Harvey, A.G. (2009). [Hypersomnia across mood disorders: A review and synthesis.](#) *Sleep Medicine Reviews*, 13(4): 275-285.
- Malkoff-Schwartz, S., Frank, E., Anderson, B., Sherrill, J.T., Siegel, L., Patterson, D. and Kupfer, D.J. (1998). [Stressful life events and social rhythm disruption in the onset of manic and depressive bipolar episodes: A preliminary investigation.](#) *Archives of General Psychiatry*, 55(8): 702-707.
- Ng, T.H., Chung, K.-F., Ho, F.Y.-Y., Yeung, W.-F., Yung, K.-P. and Lam, T.-H. (2015). [Sleep-wake disturbance in interepisode bipolar disorder and high-risk individuals: A systematic review and meta-analysis.](#) *Sleep Medicine Reviews*, 20: 46-58. <https://doi.org/10.1016/j.smrv.2014.06.006>
- Perlman, C.A., Johnson, S.L. and Mellman, T.A. (2006). [The prospective impact of sleep duration on depression and mania.](#) *Bipolar Disorders*, 8(3): 271-274.
- Plante, D.T. and Winkelman, J.W. (2008). [Sleep disturbance in bipolar disorder: Therapeutic implications.](#) *American Journal of Psychiatry*, 165(7): 830-843.
- Post, R.M. (1992). [Transduction of psychosocial stress into the neurobiology of recurrent affective disorder.](#) *American Journal of Psychiatry*, 149(8): 999-1010.
- Ritter, P.S., Marx, C., Bauer, M., Leopold, K. and Pfennig, A. (2011). [The role of disturbed sleep in the early recognition of bipolar disorder: A systematic review.](#) *Bipolar Disorders*, 13(3): 227-237.
- Sylvia, L.G., Dupuy, J.M., Ostacher, M.J., Cowperthwait, C.M., Hay, A.C., Sachs, G.S. et al. (2012). [Sleep disturbance in euthymic bipolar patients.](#) *Journal of Psychopharmacology*, 26(8): 1108-1112.
- Talbot, L.S., Stone, S., Gruber, J., Hairston, I.S., Eidelman, P. and Harvey, A.G. (2012). [A test of the bidirectional association between sleep and mood in bipolar disorder and insomnia.](#) *Journal of Abnormal Psychology*, 121(1): 39-50.
- Wehr, T.A., Sack, D.A. and Rosenthal, N.E. (1987). [Sleep reduction as a final common pathway in the genesis of mania.](#) *American Journal of Psychiatry*, 144(2): 201-204.
- Yatham, L.N., Kennedy, S.H., Parikh, S.V., Schaffer, A., Bond, D.J., Frey, B.N. et al. (2018). [Canadian Network for Mood and Anxiety Treatments \(CANMAT\) and International Society for Bipolar Disorders \(ISBD\) 2018 guidelines for the management of patients with bipolar disorder.](#) *Bipolar Disorders*, 20(2): 97-170. <https://doi.org/10.1111/bdi.12609>