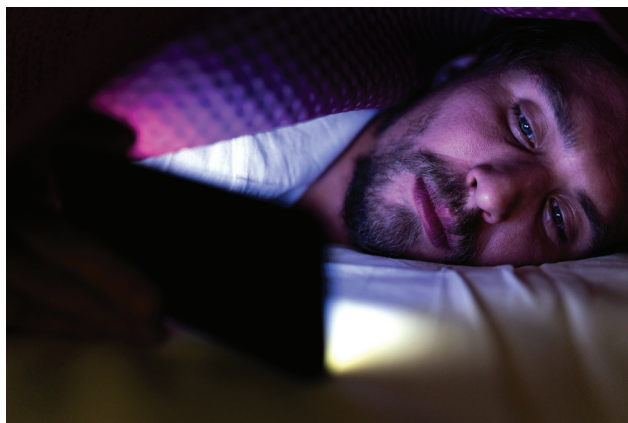


## Out of the blue? How the colour of light could be used to treat mental illness

### Level 3: Advanced

#### 1 Warmer

a. Discuss these questions.



1. What in particular is it that might disturb this person's sleep?
2. Has your mood ever been worse because of a bad night's sleep? What happened?
3. What impact can the design of a room (light, colour, layout) have on how people feel?

#### 2 Key words

a. Match the correct word to each definition. Then find and highlight them in the article to read them in context.

implement	anecdotal	intervention	occurrence	suppress
aggression	disruption	acute	psychiatrist	mounting
burden	filter	layout	spectrum	trigger
circadian	funding	melatonin	wavelength	vulnerable

1. \_\_\_\_\_ : a doctor who treats mental health problems with medication
2. \_\_\_\_\_ : a natural chemical in the body that helps you sleep
3. \_\_\_\_\_ : a range of different types or levels
4. \_\_\_\_\_ : an action taken to improve or stop a situation
5. \_\_\_\_\_ : angry or violent behaviour
6. \_\_\_\_\_ : based on personal stories, not strong evidence

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7. \_\_\_\_\_: the distance between one light wave and the next
8. \_\_\_\_\_: describes someone who is easily hurt or affected
9. \_\_\_\_\_: describes something that is increasing or growing
10. \_\_\_\_\_: money given for a project or activity
11. \_\_\_\_\_: to put into action or use
12. \_\_\_\_\_: related to the natural daily cycle of the body (about 24 hours)
13. \_\_\_\_\_: something heavy or difficult to carry or deal with
14. \_\_\_\_\_: something that happens
15. \_\_\_\_\_: something that interrupts normal activity
16. \_\_\_\_\_: to stop or reduce something
17. \_\_\_\_\_: the way something is arranged or designed
18. \_\_\_\_\_: something that removes unwanted parts from something
19. \_\_\_\_\_: to cause something to happen
20. \_\_\_\_\_: describes something that is very strong or serious

**b. Complete the sentences with words from the previous activity. You might have to change the form of the word.**

1. Blue light has a shorter \_\_\_\_\_ than red light.
2. Children are particularly \_\_\_\_\_ to catching illnesses.
3. Floods are a common \_\_\_\_\_ in this area during the winter.
4. Most of his ideas are based on \_\_\_\_\_ evidence from his friends.
5. Paying all the bills alone is a(n) \_\_\_\_\_ for her and she finds it difficult.
6. She felt a(n) \_\_\_\_\_ pain in her leg and couldn't walk.
7. She visited a(n) \_\_\_\_\_, so she could take something to help with her anxiety.

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8. The app on her phone uses a special \_\_\_\_\_ for pictures of faces.
9. The company wants to \_\_\_\_\_ a new data safety policy to protect the business.
10. The design and the \_\_\_\_\_ of the website make it very easy to use.
11. The disorder exists on a(n) \_\_\_\_\_ from mild to severe.
12. Levels of \_\_\_\_\_ in the body increase at night.
13. The school received \_\_\_\_\_ from the local government for new computers.
14. Storms caused a serious \_\_\_\_\_ to train services.
15. There is \_\_\_\_\_ pressure on the company to fix the problem.
16. You can often see a lot of \_\_\_\_\_ in the centre of town on Friday nights.
17. This medicine can help to \_\_\_\_\_ pain in your neck and back.
18. Try to avoid stressful situations because they can \_\_\_\_\_ headaches.
19. Without early \_\_\_\_\_ from his teachers, her son could find school very hard.
20. Your \_\_\_\_\_ rhythm affects when you feel sleepy.

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*A psychiatric unit in Norway has been testing its built-in lighting on conditions such as psychosis and depression*

**Linda Geddes**  
**13 March, 2026**

- 1 At first glance, the psychiatric ward in Trondheim looks much like any other unit caring for patients in acute mental distress. But as evening falls, filters descend over the windows, and the lights shift to a soft amber glow. By removing blue wavelengths that interfere with the body's internal clock, doctors here are testing an unusual idea: that the design of the ward itself could become a form of treatment.
- 2 Light is the main signal regulating the body's circadian rhythm the roughly 24-hour biological clock that governs sleep and many other bodily processes. Mounting evidence links circadian disruption to conditions including depression, cardiovascular disease and dementia, and disturbed sleep-wake cycles are a long-recognised feature of mental illness, particularly bipolar disorder.
- 3 "Increasingly, both anecdotal and experimental evidence suggests that bipolar people are quite sensitive to light, which can be unhelpful for them in terms of seasonal changes in mood and more manic relapses with the lengthening days in springtime," said Prof Daniel Smith, a psychiatrist at the University of Edinburgh.
- 4 "The general idea is that evening light exposure, in particular, delays the phase of the clock, suppresses melatonin, and because of that, people go to sleep later and probably don't sleep as well," he said. Poor sleep can then destabilise daily patterns of rest and activity, which in vulnerable individuals may trigger mood episodes.
- 5 Because of this, there is growing interest in using light to stabilise people's body rhythms and, in turn, improve their symptoms although relatively few large clinical studies have tested the idea.
- 6 When doctors in Trondheim began planning a new psychiatric unit, it offered a rare chance to test the idea in practice. The team installed a dynamic lighting system and automated blinds designed to remove blue wavelengths from the ward in the evening.
- 7 "Many patients with severe mental illness have circadian disruption, and we wanted to see whether we could do something about this by changing the light system," said Håvard Kallestad, a researcher and consultant psychologist at St Olavs hospital and the Norwegian University of Science and Technology, who led the research.
- 8 The unit was divided into two identical halves with the same layout, staffing and facilities. The only difference was the evening light environment. In one ward, lighting shifts from 6pm to remove blue wavelengths the type the circadian system is most sensitive to while blinds and filters block similar light from windows and screens. In the other, patients experience standard hospital lighting.
- 9 An earlier study showed that healthy volunteers staying in the ward experienced changes in melatonin secretion, sleep patterns and alertness.
- 10 The research, presented at a recent meeting of the International Society for Bipolar Disorders and published in PLOS Medicine, found that although the overall length of stay was similar — typically three or four days — patients treated in the circadian-adapted ward showed greater clinical improvement and less aggressive behaviour.
- 11 Kallestad said: "Just by changing the light spectrum, we can improve the quality of treatment, and we saw that in particular on aggressive behaviour."
- 12 Aggression and agitation are common challenges in acute psychiatric wards, where studies suggest the occurrence of aggressive behaviour ranges between 8% and 76% of cases, posing risks for both patients and staff.
- 13 Prof Derk-Jan Dijk, a sleep and circadian rhythm researcher at the University of Surrey, who was not involved in the study, said one of its most interesting aspects was that the intervention was built into the ward itself. "The burden to the participants is essentially zero they don't have to sit in front of a light box or wear blue-blocking glasses."
- 14 Such approaches could be implemented at scale by designing indoor environments that align better with human biology, he added. "They confirm that the effects of light on the brain are not limited to the biological clock or sleep. They also influence mood and alertness."

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- 15 Researchers are also exploring whether circadian lighting could benefit people beyond psychiatric wards. The UK's National Institute for Health and Care Research has launched a funding call for trials testing whether it could help "reset" the internal clocks of people living in care homes and reduce behavioural disturbances in dementia.
- 16 Prof Anthony Gordon, director of NIHR's health technology assessment programme, said: "It's about determining if we can use light therapy to reduce anxiety, improve sleep, and provide a cost-effective, drug-free way to enhance the quality of life in residential care across the country."
- 17 Prof Colleen McClung, a neuroscientist at the University of Pittsburgh who published a review on circadian rhythms in psychiatric disorders last month, said such approaches may become increasingly personalised: "For example, if someone has circadian rhythms that are delayed, light therapy in the morning will shift rhythms forward. If someone's rhythms are advanced, light therapy in the afternoon or evening could be beneficial."

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#### 3 Comprehension check

a. Answer the questions using information from the article.

1. What is unusual about the lighting in the psychiatric ward in Trondheim?
2. What health conditions are linked to circadian disruption?
3. Why are people with bipolar disorder sensitive to light?
4. How does evening light affect melatonin and sleep?
5. What can happen to people when they do not sleep well?
6. What was the difference between the two wards used in the study?
7. What changes were seen in healthy volunteers in an earlier study?
8. What were the main results of the study with patients?
9. Why do researchers think this type of intervention is easy for patients?
10. How might this lighting system be useful outside psychiatric wards (e.g. in care homes)?

#### 4 Key language

a. Complete the sentences from the article with the verbs below.

trigger

govern

delay

interfere with

suppress

By removing blue wavelengths that (1) \_\_\_\_\_ the body's internal clock.

The roughly 24-hour biological clock that (2) \_\_\_\_\_ sleep.

Evening light exposure, in particular, (3) \_\_\_\_\_ the phase of the clock and  
(4) \_\_\_\_\_ melatonin.

Poor sleep can (5) \_\_\_\_\_ mood episodes.

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**b. Match the expressions for cause and effect to their definitions.**

- |                  |  |
|------------------|--|
| 1. bring about   | a. to make something more likely to happen |
| 2. contribute to | b. to develop as the result of something   |
| 3. encourage     | c. to cause a change                       |
| 4. result in     | d. to be the reason that something happens |
| 5. stem from     | e. to be one of multiple causes            |

**c. Complete the sentences using the expressions from tasks a and b.**

1. They created the new law to \_\_\_\_\_ long-term changes in workplace safety.
2. A lack of exercise is one of the factors that can \_\_\_\_\_ health problems.
3. Parents should \_\_\_\_\_ their children to read by giving them interesting books.
4. Failure to follow the instructions may \_\_\_\_\_ serious injury.
5. His fear of hospitals seems to \_\_\_\_\_ a bad experience in childhood.
6. Heavy traffic could \_\_\_\_\_ the arrival of the police and the criminals might escape.
7. The hospital regulations \_\_\_\_\_ how medical data can be shared between doctors.
8. Using your phone late at night can \_\_\_\_\_ your ability to fall asleep.
9. This medication is used to \_\_\_\_\_ the body's rejection of the transplant.
10. Certain foods can \_\_\_\_\_ allergic reactions in sensitive individuals.

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#### 5 Discussion

**a. Discuss these statements.**

- The only effective treatment for mental illnesses is psychiatric medicine.
- All elements of mental well-being can be influenced by changing someone's environment.
- There would be no significant financial impact from making these changes to the lighting in institutions.

#### 6 In your own words

**a. In groups, read this description of the use of colour for mental well-being and identify the colours being described.**

Careful use of colour in interior decoration can bring about positive changes in mental well-being. For example, soft (1) \_\_\_\_\_ and (2) \_\_\_\_\_ are often used in bedrooms because they help create a calm atmosphere and their association with nature can contribute to better sleep. In contrast, colours such as (3) \_\_\_\_\_ or (4) \_\_\_\_\_ may interfere with relaxation as they are seen as warning colours. Overall, thoughtful colour choices, combined with good lighting, can result in a more comfortable and supportive living environment.

**b. In your group, discuss how these other forms of interior decoration could affect mental well-being.**

- the organisation of objects and the tidiness of the space
- the inclusion of nature and plants
- the layout of the room and furniture
- the sounds in the space and how sounds move around
- the feel of the objects in the space

**c. Design the perfect space for your mental well-being (either by drawing it or describing it) and consider how each of the forms of interior decoration would affect you. Try and include the language of cause and effect. Use the example in a to help you.**

**d. Present your space to the group and explain the influence that the forms of interior decoration could have on your mental well-being.**