Seasonal Affective Disorder:
Psychological and psychopharmacological treatment

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ROGERS Behavioral Health

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Disclosures

Nicholas Mahoney, DO, and Jessica Fischer, PsyD, have each declared that they do not, nor does their family have, any financial relationship in any amount occurring in the last 12 months with a commercial interest whose products or services are discussed in the presentation.

The presenters have each declared that they do not have any relevant non-financial relationships. Additionally, all planners involved do not have any financial relationships.

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Learning objectives

Upon completion of the instructional program, participants should be able to:

1. Summarize recent research that compares CBT-SAD to other known effective treatments, then describe and be able to implement at least two skills for SAD.
2. Describe the use of light therapy and identify at least two evidenced-based pharmacotherapy and/or supplement recommendations for seasonal affective disorder.

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What we'll cover in this webinar

SAD overview
- Diagnostic information
- Prevalence rates for different cultures

Biological interventions
- Light therapy
- Pharmacotherapy
- Alternative treatments/supplements

Psychological interventions
- CBT-SAD in the research
- Implementing CBT-SAD

Moderated Q&A

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SAD: An overview

Please use the Q&A feature to send your questions to the moderator.

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DSM-5 diagnostic information

Specifier of With Seasonal Pattern:

- Present over past two years
- Correlation between times of year and onset and remission of depression
- Can not be due to seasonal stressors
- This is not applicable to any stressors that are seasonally related such as being in school
- No nonseasonal MDD episodes in past two years
- Lifetime occurrence of seasonal MDD is higher than nonseasonal MDD

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DSM-5 diagnostic information, cont.

With Seasonal Pattern:

- Common symptoms include: "prominent energy, hypersomnia, overeating, weight gain, and a craving for carbohydrates."
- According to the *DSM-5* there is limited information on prevalence of seasonal patterns for MDD vs. Bipolar, but seems more correlated with Bipolar II than Bipolar I
- Those in higher latitudes and who are younger are more susceptible to seasonal mood patterns
- Per Rohan (2009), SAD cases represent 10-20 percent of those with recurrent depression

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Prevalence rates

Wirz-Justice, Ajdacic, Rossler, Steinhausen & Angst (2019) reviewed the literature on prevalence estimates of SAD:

- United States: 1%
- Alaska (64° N): 9.2%

"Old Order Amish in Pennsylvania… prevalence is lower than that observed in a nearby population in Maryland: 0.84% compared with 4.3%"

(Wirz-Justice, et. al., 2019)

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Prevalence rates, continued

Higher prevalence in US with higher latitude:

- New Hampshire (43° N): 9.7%
- New York (41° N): 4.7%
- Maryland (39° N): 6.3%
- Florida (27° N): 1.4%

Comparing similar latitudes:

- Maryland (39° N): 4.3%
- Turkey (37-41° N): 4.86%

(Wirz-Justice, et. al., 2019)

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Prevalence rates, cont.

Weaver, et. al., (2015) noted decreased depression levels in Southern US residents – climate, sunlight

- 60% of Black Americans and 90% of rural Black Americans reside in the South
- Residing in the South is a potential protective factor for Black American suicide risk – higher population, familial ties, church
- A study by Blazer, et. al. (1985) indicated for all races/ethnicities:
  - Rural south related to lower prevalence of depression compared with urban residence
  - MDDs twice as likely in urban communities
- Weaver also examined depression in Southern women:
  - Higher for urban African American women than counterparts
  - Higher for rural non-Hispanic white women than counterparts

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Biological interventions

Q&A

Please use the Q&A feature to send your questions to the moderator.

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Chronobiology of SAD – Photoperiodism hypothesis

Photoperiodism hypothesis

- The shortened duration of daylight is the primary factor influencing SAD symptoms
- In one study, winter SAD rates were significantly higher in US regions of higher latitude
  (Rosen, et. al., 1990)
- Another review of 22 studies examining SAD found a 0.66 correlation between latitude and rates of SAD
  (Michalak, et. al., 2002; Levitan, 2007)

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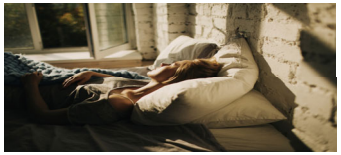
Chronobiology of SAD – Photoperiodism hypothesis

Melatonin

- Melatonin may also influence other functions such as appetite, immune system, haemostasis, and glucose regulation (Claustrat & Leston, 2015)



- There have been variable results on the correlation of melatonin levels/rhythms and SAD symptoms
- With light therapy, using both morning and evening light therapy has not shown to be as effective as morning use alone

(Levitan, 2007)

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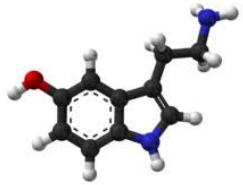
Neurobiology of SAD – Serotonin

- Serotonin levels show seasonal variations
- In post-mortem samples, hypothalamus serotonin levels were lowest in December and January (Carlsson, et. al., 1980)
- Patients with SAD have shown to have increased serotonin transporter activity in the winter months (McMahon et. al., 2016; Tyrer, et. al., 2016)
- Tryptophan depletion can precipitate relapse in depressive symptoms (Gupta, et. al., 2013)



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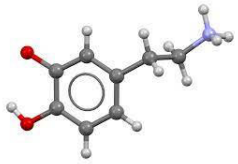
Neurobiology of SAD – Dopamine

- Dopamine is involved in the circadian rhythm (Kant, et. al., 2021)
- It functions at the level of the retina with an inhibitory relationship with melatonin (Levitan, et. al., 2007)
- There has been shown to be decreased dopamine transporter availability in the striatum of symptomatic SAD patients (Neumeister, et. al., 2001)



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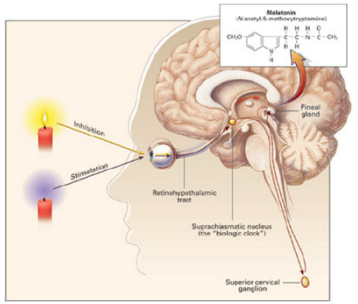
Light therapy

1. Light stimulates retinal ganglion cells
2. Project to anterior hypothalamus by retinohypothamlamic tract
3. Releases glutamate in suprachiasmatic nucleus
4. Suppresses melatonin production in pineal gland



Illuminating Rationale and Uses for Light Therapy - Scientific Figure on ResearchGate.
Available from: https://www.researchgate.net/figure/Physiology-of-Melatonin-Secretion-Melatonin-in-set-is-produced-in-the-pineal-gland_fig1_40454967 [accessed 26 Dec, 2022]

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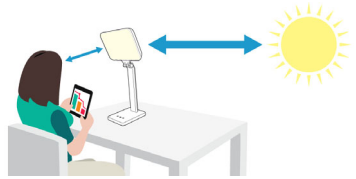
Light therapy: Instructions

10,000 lux light box using fluorescent bulbs emitting white light

- 30 minutes a day
- To use as early as possible (before or during breakfast)
- Follow specific light instructions for the distance from light (2-3 feet)
- Keep eyes open
- Do *not* look directly into the light – position at a 30- to 60-degree angle



https://carex.com/blogs/resources/bright-light-therapy-guide

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Light therapy: Side effects and risks

- No absolute contraindications
- Eye sensitivity
  - Personal or family history of ophthalmological conditions
  - Photosensitizing medications
- Case studies of increased suicidality
- May induce mania / hypomania although risk is variable across studies (Takeshima, et. al., 2020)

- Agitation
- Anxiety
- Eye strain, photophobia, or visual disturbance
- Fatigue
- Headache
- Insomnia
- Irritability
- Nausea

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Light therapy: Evidence

- Several meta-analyses found a clinical benefit with bright light therapy (Pjrek, et. al., 2020; Mårtensson, et. al., 2015; Golden, et. al., 2005)
- Patients usually receive response in 1 to 4 weeks with bright light therapy
- Treatment should continue at least 2 weeks past the typical offset in symptoms in spring/summer

Bright midday sun	*50,000 to 100,000 lux*
Cloudy day	*1,000 to 5,000 lux*
Indoor office lighting	*500 lux*
Indoor home lighting	*250 lux*

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Light therapy: Evidence, cont.

One study (Uzoma, et. Al., 2015) investigated the response of light therapy between Black American (N=51) and White American patients (N=27) with SAD

Findings

- There were no significant differences between the groups in terms of adherence to treatment or symptomatic improvement
- The Black participants had lower remission rates post-treatment as defined as SIGH-SAD score ≤ 8

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Dawn stimulation

- Use of less intense light that gradually increases for 30 to 90 minutes and concludes when patient typically wakes up
- May be particularly helpful with difficulty awakening and morning drowsiness

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Pharmacotherapy

Antidepressants

- Selective Serotonin Reuptake Inhibitors (SSRI's) are the first recommendation
- A couple studies demonstrated similar benefit when comparing fluoxetine to bright light therapy (Avery, et. al., 2022; Nussbaumer-Streitet, et. al., 2021; Lam, et. al., 2006)
- Zoloft showed benefit compared to placebo in a RCT (Ruhrmann, et. al., 1998)
- Evidence of bupropion being used for prevention of SAD (Moscovitch, et. al., 2004; Gartlehner, et. al., 2019)
- Start treatment 4 weeks prior to usual onset of symptoms and continue 2 weeks past usual symptom offset

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Alternative treatments / supplements

L-tryptophan

- Two small, preliminary trials suggest L-tryptophan as effective as light therapy (McGrath, et. al., 1990; Ghadirian, et. al., 1998)

Vitamin D

- In a small study (N=15), Vitamin D was shown to have greater improvement in depression symptoms compared to light therapy (Gloth, et. al., 1999)
- 2,117 women 70 years and older treated with 800 IU of Vitamin D showed no benefit (Dumville, et. al., 2006)

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Alternative treatments / supplements, cont.

Melatonin

- When taken in the morning (7 am) or evening (11 pm), 5mg dosing of melatonin demonstrated no significant benefit (Wirz-Justice, et. al., 1990)
- One small pilot study (N=10) showed decrease in depression symptoms when taken in the afternoon (Lewy, et. al., 1998)

Saint John's Wort (Hypericum perforatum)

- A postal survey of 301 SAD patients reported improvement in those using St. John's Wort (Wheatley, 1999)
- Two small, single-blind studies suggest comparable benefit to light therapy (Martinez, et. al., 1994; Kasper, 1997)

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Clinical recommendations

For severe winter SAD

- First line therapy is an antidepressant plus light therapy (bright light therapy or dawn simulation) or pharmacotherapy alone
  - Light therapy alone could be considered first line in mild to moderate seasonal affective disorder
- Second line recommendations depend on the initial choice of treatment – this could involve changing the antidepressant or adding light therapy

(Avery, et. al., 2022)

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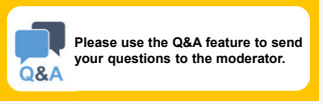
Psychological interventions



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CBT-SAD: Research

Mindfulness-based cognitive therapy (MBCT)

- There has been some research into MBCT in preventing depression by using when in remission but found to not prevent depression in winter

MBCT components:

- CBT
- Mindfulness (nonjudgmentally monitoring thoughts)
- Meditation (breathing, stretching)
- Weekly sessions that were 45-60 minutes from April to June

(Meesters & Gordjin, 2016; Forneris, et. al., 2019; Fleer, et. al., 2014; Meesters & Gordijn, 2016)

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CBT-SAD: Research

- Meesters & Gordjin (2016): As SAD is repetitive at a consistent time of year it would be beneficial to attempt to find preventative treatments
- Forneris, et. al. (2019): There is a lack of preventative treatments for SAD in their review of literature
- Rohan (2007): Six weeks of CBT was as effective as 30 minutes of LT each morning
- Meyerhoff, Young, & Rohan (2018): CBT and LT similar for remission of 17 symptoms by the end of the study but LT showed more rapid improvement for “early insomnia, psychic anxiety, hypersomnia, and social withdrawal” than CBT-SAD

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CBT-SAD: Research

Rohan, Meyerhoff, Ho, Evans, Postolache, & Vacek (2016):

- First year follow up for recurrence of new depressive episode:

Recurrence Rates Year One	Percent
CBT	7%
CBT and LT	6%
LT	37%

- Second (larger study) recurrence results:

Recurrence Rates Year One	Percent	Recurrence Rates Year Two	Percent
CBT	29%	CBT	27%
LT	25%	LT	46%

- In the second winter CBT-SAD was correlated with less severity of symptoms and more remissions
- Remission in first winter was more correlated with remission/less severe symptoms in second winter for CBT-SAD than for LT

Note: Forneris et. al. (2019) study was not included in their review as a prevention study because treatment began after symptom expression but was rather a recurrence prevention study

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CBT-SAD: Research

- Camuso & Rohan (2020): More severe depression was correlated with greater severity after treatment when assessed after one and two years for both CBT-SAD and LT
- Sitkinov, Rohan, Mahon, & Nillni (2013): Those with more cognitive concerns at the start of treatment had more problematic thoughts if using LT alone than those who also used CBT
- Camuso & Rohan (2020): Cognitive vulnerabilities were "not sufficient predictors of treatment outcome above and beyond initial depression severity for SAD patients"
  - After both CBT-SAD and LT those who are active in morning had lower depression
  - There were fewer recurrences of depression in the second follow-up for CBT-SAD than LT

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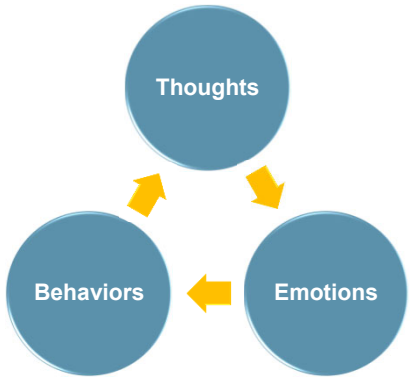
Implementing CBT-SAD



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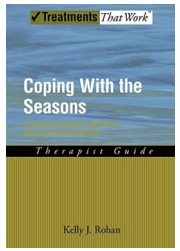
Coping with the Seasons…Therapist Guide

- 12 groups over 6 weeks
- 1.5 hours in duration
- Beginning in fall
- Four to six members
- Two leaders
- Material builds on previous session
- No maintenance groups are needed



(Rohan, 2009)

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Coping with the Seasons…

Treatment includes:

- Psychoeducation
- Behavioral Activation
- Cognitive Restructuring (schemas, automatic thoughts)
- Positive Reinforcement
- Relapse Prevention

(Rohan, 2009)

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CBT-SAD: Summary of sessions

Week	Sessions	Component
1	1 and 2	Psychoeducation
2	3 and 4	Behavioral Activation
3	5 and 6	Cognitive Therapy
4	7 and 8	
5	9 and 10	
6	11 and 12	Relapse Prevention

(Rohan, 2009)

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Session 1: Psychoeducation

- SAD symptoms
- Potential causes of SAD
- CBT-SAD as a method for managing and preventing SAD symptoms
- CBT-SAD focuses on being more active (BA) and on helpful thoughts (cognitive restructuring)
- Confidentiality
- Rationale for homework

(Rohan, 2009)

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Session 2: Psychoeducation

- Describe SAD and symptoms
- Emotions being on a continuum (sadness and depression)
- SAD as a cycle
- Prevalence rates of SAD
- Hypotheses of potential causes of SAD

(Rohan, 2009)

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Session 3: Behavioral activation

- Cycle of SAD and inactivity perpetuating one another
- Easiest to target behavior change
- Unhelpful thoughts can lead to decreased engagement in pleasant activities

- Helpful/motivational thoughts
- Complete a pros and cons of engagement in behavioral activation
- *Challenging but possible* activities
- Cope ahead

(Rohan, 2009)

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Session 4: Behavioral activation

- Include activities in the following areas:
  - Social activities
  - Building competency
  - Incompatible with depression
  - Aerobic exercise
- Cope ahead for challenging scenarios
- Balance pleasant, valued and routine tasks
- Teach participants to set goals to increase activities, record enjoyment and reinforce

(Rohan, 2009)

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Session 5: Cognitive therapy

- Consists of thought diaries, Socratic questioning, developing rational responses, determining core beliefs
- ABC model: Antecedent (event), Belief (thoughts about the event) and Consequences (emotional response)
- Unhelpful thinking: Negative Problem Orientation (NPO); unhelpful thoughts tend to be more prevalent in fall or winter
- Have participants complete a thought diary: Review ALL possible automatic thoughts to situations, emotions, and any current stressors

(Rohan, 2009)

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Session 6: Cognitive therapy

- SAD-specific automatic thoughts
  - Weather
  - Winter
  - Seasonal changes
  - Variances in light
- Provide an overview on cognitive distortions – where events are distorted in an unhelpful manner
- Review case and personal examples
- Identify their own distortions

(Rohan, 2009)

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Cognitive distortions

All or Nothing Thinking	Black-and-white thinking	Winter is the worst, summer is amazing
Overgeneralization	Assuming an event that occurred once will happen ongoing; always or never statements	I will never be able to function in winter again
Mental Filter	Focusing on negative aspects and ignoring positives	Because the day is cloudy, I can't do anything
Disqualifying the Positive	Turning positives into negatives	After success with BA, a participant says to herself that it didn't matter because she still has SAD
Jumping to Conclusions	Jump to negative conclusions (mind reading- assume what others think; fortune teller- predicting worst outcomes)	They think I am boring because I have SAD I have SAD forever
Magnification / Catastrophizing and Minimization	Magnifying negative events so they become catastrophes or minimizing the importance of positive events	Thinking winter is a catastrophe you will be unable to survive; minimizing a warmer day in winter
Emotional Reasoning	Use emotions as proof	I feel sad, therefore I am broken
Should Statements	"Shoulds" "Musts" "Oughts"	I should be able to cope with winter
Labeling/Mislabeling	Labeling people instead of behaviors; labeling using extreme emotion	I am terrible because I have SAD
Personalization	Assuming responsibility for events out of control	I am responsible for my SAD

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Session 7: Cognitive therapy

- Control over automatic thoughts:
  1. Increase awareness of automatic thoughts
  2. Challenge those thoughts
- Introduce the Socratic Method
- Evaluate personal SAD related automatic thoughts
- Review previous personal examples that go against negative thoughts
- Increase internal locus of control

Socratic Method:
- Present evidence for and against the thought
- Identify: worst/best/most realist scenarios
- Analyze impact of automatic thought vs. changing the thought
- Problem solve the event that led to the automatic thought

(Rohan, 2009)

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Session 8: Cognitive therapy

- Create rational responses to replace unhelpful thoughts
  - Add D (dispute) at the end of ABC model
  - Find more realistic/accurate/helpful thoughts about situations
  - Develop several rational, highly believable responses for each automatic thought
  - View the impact of the rational thought on automatic thought and emotional state
- Determine personal examples of rational responses to SAD automatic thoughts

(Rohan, 2009)

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Session 9: Cognitive therapy

- Teach the group about core beliefs
  - Perception of world, others and ourselves
  - Fundamental and things we believe to be true
  - Generally tend to be helpful thoughts, but in depression can be negative
  - Impact thoughts, emotions, behaviors
  - Lead to different reactions to same situation

Identify core beliefs through themes of automatic thoughts:
- Downward arrow

– or –
- Participants complete a core belief questionnaire

(Rohan, 2009)

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Session 10: Cognitive therapy

- Core beliefs: unlovable or helpless
- Help change core beliefs to be more helpful or positive

For each core belief:

- Rate strength of belief (0-100%)
- Evidence for belief (implement "BUT…" statement)
- Evidence against belief
- New belief
- Rate strength of new belief (0-100%)
- Rate strength of old belief (0-100%) after generating new belief

(Rohan, 2009)

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Session 11: Relapse prevention

- Work through all core beliefs
- Create relapse prevention plan
  - Maintain gains
  - Cope ahead
  - Increase BA
  - Thought Challenging
- Create new goals for self/relationships

(Rohan, 2009)

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Session 12: Relapse prevention

- Review previous group material
- Relapse prevention plans
- Closure of thoughts/feelings of groups
- Internalize success
- Emphasize importance of reviewing material, practicing skills and seeking help when needed in subsequent winters

(Rohan, 2009)

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Case example

Gwen is a 63-year-old, white, bisexual, cisfemale residing in Eastern Washington State.

During her intake, she acknowledged that starting in November, she had begun to have decreased energy, increased appetite, lack of interest in activities, and sleeping excessively. She was no longer engaging with friends and only attending work.

In gathering her history, Gwen noted experienced improvements in her mood when doing light therapy, but admitted she was not consistent in implementation five years ago.

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Potential recommendations

- Use CBT-SAD framework to address:
  - Psychoeducation on cyclical nature of SAD
  - BA to identify enjoyable and valued activities to do in winter; ways to increase social connections/decreasing isolation (develop plans for activities with friends)
  - Challenge unhelpful thoughts and replace with rational thoughts using Socratic Method, ABC+D, and core beliefs
  - Establish plan for continued implementation of skills in subsequent fall/winter seasons
- Medication management
- Reimplementing light therapy

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Time for questions and answers…

- Please use the Q&A button – not the chat – to submit your question
- If we don't get to your question, please feel free to send an email to **webinars@rogersbh.org** and we will follow-up with you

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Where to get additional information…

ADAA Anxiety & Depression Association of America
Triumphing Through Science, Treatment, and Education

ADAA's website offers expert reviewed content to supplement your client's treatment:

https://adaa.org/understanding-anxiety/depression/SAD

NIH National Institute of Mental Health | Transforming the understanding and treatment of mental illnesses.

NIH has a section of content for clients in English and Spanish:

https://www.nimh.nih.gov/health/publications/seasonal-affective-disorder

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About the presenters….

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