**Cognitive Behavioural and Chronotherapeutic Interventions for Insomnia**

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### What is insomnia?

- **What is insomnia?**
- **Treatment of insomnia**
- **Models of implementation**

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### What is insomnia? - ICD-10 diagnoses

- F51.01 Primary Insomnia
- F51.02 Adjustment Insomnia
- F51.03 Paradoxical Insomnia
- F51.04 Chronic insomnia**
- F51.05 Insomnia due to other mental disorder
- F51.8 Other sleep disorders not due to a substance or known physiological condition
- G47.0 Insomnia unspecified
- G47.01 Insomnia due to medical condition

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### Primary vs. Secondary Insomnia

- In 20-25% of cases insomnia exists in isolation and is the primary disorder (perpetuating dimension only)
- Usually there is some secondary relationship with a ‘primary’ condition (precipitating dimension only)
  - Psychiatric illness: depression, anxiety
  - Medical illness: chronic pain
  - Medications with alerting effects

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### Primary vs. Secondary Insomnia

- However, treating the ‘primary’ condition often does not improve sleep
- Insomnia develops a degree of independence over time
- Now thought of as a **comorbid** disorder rather than secondary

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### What is insomnia?

**DSM-5 Insomnia Disorder**

- Dissatisfaction with sleep quality or quantity (difficulty initiating or maintaining sleep)
  - Despite adequate opportunity
  - At least 3 times per week for >3 months
- The sleep disturbance causes clinically significant distress or impairment in functioning
- Sleep disturbance is not better explained by and does not occur exclusively during the course of another sleep, medical, or psychiatric disorder or as the result of a substance
What is insomnia?

- **Episodic (acute) insomnia**
  - Duration >1 month but <3 months
  - 25-35% of population

- **Chronic insomnia**
  - Duration >3 months
  - 10-15% of population

Behavioral model of insomnia

Key dimensions of insomnia

- **Dimension 1:** Precipitating factors: to what extent are the ‘triggers’ still present?
- **Dimension 2:** Perpetuating factors: what factors are maintaining the insomnia?

Insomnia and the 2-process model of sleep regulation

- **Homeostatic sleep drive (Process S)**
  - During wakefulness a drive for sleep builds up that is discharged during sleep
  - As sleep drive increases, so do subjective feelings of sleepiness
  - Can be weakened by behaviors: napping, excessive time in bed, etc.

Insomnia and the 2-process model

- **Circadian rhythms (Process C)**
  - Strength of rhythms can be weak (e.g. irregular sleep schedule)
  - Misalignment is often overlooked in the assessment of insomnia
  - Delayed sleep phase most common
  - Clues that there is a delayed phase component
    - Sleep onset is faster if bedtime is later
    - Tend to go to sleep later on weekends / vacations

(Borbely et al. 1982)
Insomnia and the 2-process model

- Does the insomnia occur if they follow their circadian tendency?
- Diagnosis of circadian rhythm sleep disorder vs. insomnia with circadian tendencies
  - Delayed sleep phase syndrome
  - Advanced sleep phase syndrome

Process W: conditioned hyperarousal

- Manifestations of hyperarousal
  - Somatic
  - Emotional
  - Cognitive
  - Cortical

What is insomnia?

- Begins due to precipitating factors
- Maintained by perpetuating factors
  - Conditioned hyperarousal
  - Inadequate buildup of sleep drive
  - Weak or misaligned circadian rhythms
  - Behavioral and cognitive factors

Treatment of insomnia

- Sleep medications
  - Pros: widely available, many medications to choose from, demonstrated, rapid efficacy
  - Cons: often not effective, potential for side effects or drug-drug interactions, tolerance, requires long-term use

Treatment of insomnia

- Cognitive behavioural treatment of insomnia (CBT-I)
  - Stimulus control
  - Sleep restriction
  - Cognitive strategies
  - De-arousal techniques
  - Sleep hygiene

Efficacy of behavioral\(^1\) and hypnotic\(^2\) treatments

(\(^1\)Murtagh & Greenwood, 1995; \(^2\)Nowell et al., 1997)
Treatment of insomnia

- Chronotherapeutic interventions
  - Setting a regular sleep/wake schedule
  - Engaging in other activities in a routine (e.g. meals, physical activity)
- Light therapy
- Melatonin
  - Hypnotic or chronobiotic?

Models of implementation

- CBT-I is considered the gold standard treatment
  - Better long-term outcomes
- Problems
  - Lack of awareness that it exists
  - Lack of trained providers
  - Not always clear how to implement
  - Volume of patients

Models of implementation

- Group CBT-I
  - Individual intake
  - 6-8 patients per group
  - 90-minute weekly sessions
  - NOT just a psychoeducation group
  - Group process critical

Important to keep CBT-I in sleep medicine
Models of implementation
• Internet delivery

Models of implementation
• Internet delivery
  • Not just self-help materials online
  • Highly interactive
  • Sleep diaries kept online
  • Treatment components delivered using multimedia approaches

Models of implementation
• Internet delivery
  • Pros:
    • Widely available
    • Self-paced
  • Cons:
    • Lack of assessment / triaging
    • Limited provider oversight

Models of implementation
• Telemedicine
  • Use of video equipment to deliver treatment remotely
  • Can be either individual or group
  • Otherwise the same as in-person treatment
**Models of implementation**

- Telemedicine
  - Unique issues:
    - Cross-border licensing: where is the clinical encounter occurring?
    - Safety: SI / HI
    - Privacy / information security

**Models of implementation**

- Mobile applications

**Models of implementation**

- Mobile applications
  - Pros:
    - Access
    - With individuals all day
  - Cons:
    - No assessment of comorbidities
    - Entirely untested

**Stepped care model**

- % of insomnia population with access

**Summary**

- Insomnia is a highly prevalent sleep disorder that poses a significant public health burden
- There are several options for treating insomnia
  - CBT-I is the optimal front line approach
- Implementation can be through a variety of means to increase access and provide comprehensive sleep medicine services