Sleep problems in FASD: A focus on solutions

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Focus of Workshop

- The concepts of arousal and arousal regulation and how those relate to sleep
- Potential reasons why children with FASD may be prone to sleep difficulties
- Sleep as a developmental milestone and facilitation of healthy sleep habits
- Assessment and intervention strategies for problematic sleep behaviors

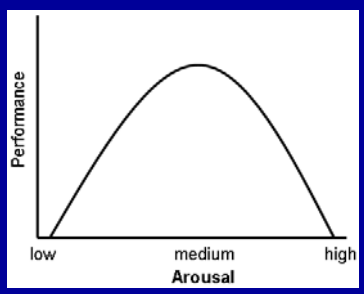
States of Arousal

Optimal "Arousal" Levels

- There is an optimal "arousal level" for various human activities (e.g., sleep, attention, learning).
- There is an optimal level of arousal for each person.
- We strive to achieve & maintain this optimal level using various means (e.g., coffee, food, music, alcohol, physical activity)
- **There is an interaction between arousal and cognitive efficiency.**

Impact of Arousal

Yerkes-Dodson Law



Concept of "Arousal Dysregulation"

- Caregivers may report that a child:
  - Gets excited or upset too quickly
  - Gets frustrated easily (low frustration tolerance)
  - Looks hyperactive & impulsive
  - Is difficult to calm
  - Has frequent tantrums and meltdowns that seem to come "out of the blue"
  - Has feeding difficulties (e.g., too "hyper" to sit & eat)
  - Has sleep problems, such as trouble falling asleep and staying asleep

Factors that contribute to Arousal Dysregulation

- Temperament
- Brain Dysfunction
- Hyper-reactivity to the environment (i.e., sensory dysfunction)
- Attachment difficulties
- Environmental Events
  - Abuse
  - Neglect
  - Multiple placements
- Stress

Sleep & Arousal

- Sleep cycles are related to both biological & social regulation
- The ability to move from one state to another (e.g., from calm alert to drowsy) is important in establishing normal sleep cycles
- Sleep difficulties are a common manifestation of arousal dysregulation

Sleep: Developmental Considerations

- Regulation & consolidation of sleep reflects **an important developmental milestone** in the first year
- Over the first year of life, the internal "biological clock" begins to synchronize with internal signals & external environmental cues
- There is considerable cross-cultural variation in the age at which children typically accomplish sleep-related accomplishments such as falling asleep independently (see Konner & Skipper, 1987 for review)

Sleep: Developmental Trajectories

- By 3 mos. ~70% are able to sleep for about 4-5 hours continuously & without a feeding (DeGangi, 2000)
- By 6 mos., 84% sleep through the night & ~30-50% return to sleep independently (DeGangi, 2000)
- By 1 year, 60-70% are able to self-soothe & fall asleep independently (Anders et al., 1994)

Good Sleep Habits: Some Goals

- Regular, consistent but not ritualized bedtime routine that includes positive, relaxed interactions with caregivers/family members
- Child can be put to bed by a variety of caregivers
- Child can be placed in bed awake, without fussing/crying, & fall asleep in a reasonable amount of time independently
- When awakening during the night, the child can resume sleep without assistance or disturbing others unless hurt, ill, or markedly distressed
- Child remains in his/her own bed throughout the night

Adapted from Blampied & France, 1993

Environmental Factors that Influence Sleep Habits

- Pre-sleep interactions (e.g., feeding, rocking)
  - active soothing associated with increased night waking (e.g., Johnson, 1991)
  - infants' feeding schedule can sometimes inhibit their ability to learn to sleep independently
  - toddlers are increasingly resistant if bedtime routines are changed after 9 mos. (Anders, 1979)
- Inconsistent or inappropriate bedtimes (i.e., can lead to phase delays/disruptions in child's sleep-wake cycle)
- Responding inappropriately to normal sleep arousals (i.e., overuse of baby monitors)
- Poor limit setting & oppositional struggles often evident in multiple settings
- Use of soothing aids in early infancy & transitional objects later associated with better sleep consolidation

Prevalence of Sleep Difficulties

- Sleep problems are the most common complaint of parents at pediatric visits (Ferber, 1985)
- During the first year, 20-30% of infants showed sleep problems significant enough for their parents to seek professional guidance (Richman, 1981)
- **Sleep problems appear to be relatively persistent**
  - 41% from 8 mos.→ 3 years (Zuckerman et al, 1987)
  - 84% from 2 years→ 5 years (Kataria et al., 1981)
  - Sleep onset delays & bedtime problems tend to increase over time when measured longitudinally from 1→ 5 years (Beltramini & Hertzig, 1983)

Assessing Sleep Using a Multi-level Framework

- **Infant Context**: Individual Differences & Health
- **Parent Context**: Personality, Attributions
- **Relationship Context**: Parent-Child Interaction
- **Family Context**: Time Sharing & Sharing Time
- **Environmental Context**: Stress & Life Events
- **Cultural Context**: What is Normative

Adapted from Sadeh & Anders, 1993

Goals for Assessment

- Identify potential avenues of change & potential areas of resistance…

- Baseline sleep behavior
- Internal factors contributing to sleep problems
- External factors contributing to sleep problems
- Daily routines
- Family context (dynamics, habits, conflict, stressors)
- Cultural context

Assessment: Sleep Interview

Assessment: Sleep Log

Day	Time to Bed	Time to Sleep	Number of Signals/ Disrupts	Type of Signals/ Disrupts	Time Awake

Assessment: Additional Factors

- Medical history
- Developmental history; Current level of developmental/cognitive functioning
- Adaptive functioning
- Behavioral rating scales
- Parent-child observation
- Standard clinical interview

Intervention Approaches: Finding the right "level"

- May intervene at various "levels," depending on the needs of the child and family
- A combination of approaches may be useful, such as:
  - –Simple Behavioral
  - –Psychoeducation
  - –Complex Behavioral
  - –Cognitive-Behavioral
  - –Family Systems/Interpersonal

Intervention: "Level 1"

- Medical consultation
  - Identify & treat potential medical causes (e.g., allergies, asthma, sleep apnea, seizures)
  - Consult with medical providers re: medication side effects (e.g., asthma, ADHD)
- Develop & implement an appropriate & consistent bedtime routine
- Make appropriate changes in the sleep environment (e.g., light, noise, temperature, bedding)
- Use sleep interview & sleep log to identify simple "triggers" & work with families to reduce/ eliminate those (reduce competing reinforcers, over-stimulating events)

Intervention: "Level 2"

Psychoeducation

- Normative sleep patterns
- Normal developmental issues/milestones (e.g., attachment, separation anxiety, medical issues)
- Sleep habits as important developmental "accomplishments"
- Persistence of sleep problems
- Importance of sleep for child & adult functioning

Intervention: "Level 2"

Behavioral Modification

Antecedent → **Behavior** → **Consequence**

Using Behavioral Protocols: What are the goals?

- Shaping & reinforcing sleep habits
- Resetting of child's circadian clock
- Transfer sleep onset and sleep maintenance from external (e.g., parent) to internal control

Behavioral protocols

- First, focus on antecedents.

Intervention: Reeducation

Behavioral Modification

Antecedent → **Behavior** → **Consequence**

Antecedent Control

- Increase structure, predictability; reduce chaos, slow down
- Use of warnings, prompts, picture schedules
- PACE stimulation carefully across the day
- Give “stimulation breaks” and/or use “sensory shelters”
- Reduce extraneous stimulation when possible
- Use behavior log to examine likely triggers & eliminate those when possible

Behavioral protocols

- First, focus on antecedents. Then…
- “Pure” Extinction/Systematic ignoring
- Graduated Extinction
- Fading Procedures
- Scheduled awakenings

Understanding Extinction

- The more we understand what to expect & why, the more tolerable extinction is (note: “tolerable” not fun, easy, magical, etc.)

Day	Time awake (in minutes)
BASELINE (pre-intervention)	**35**
Day 1	65
Day 2	40
Day 3	45
Day 4	25
Day 5	10
Day 8	0
Day 19 (grandma comes)	25

Gradual Extinction

- Decide on what “variable(s)” to address
  - time between comforting
  - duration of comforting
  - physical touch/distance
  - intensity of comforting
- Make a specific plan for gradually reducing that variable, including a “hierarchy” and an explicit schedule

Example of Gradual Extinction

Day	Plan
Day 1	Enter room every 5 minutes; pat only & say “___” (do not pick up; 3 minute max)
Day 2	Enter room every 5 minutes; pat only & say “___” (do not pick up; 3 minute max)
Day 3	Enter room every 8 minutes; pat for 1 minute (do not speak)
Day 4	Enter room every 10 minutes; pat for 30 seconds or less (do not speak)
Day 5	Enter room every 15 minutes; pat for 30 seconds or less (do not speak)
Day 6	Enter room every 20 minutes; pat for 30 seconds or less; enter max 2 times
Day 7	Do not enter room

Gradual Extinction

- Decide on what "variable(s)" to address
  - time between comforting
  - duration of comforting
  - physical touch/distance
  - intensity of comforting
- Make a specific plan for gradually reducing that variable, including a "hierarchy" and an explicit schedule
- Understand that these soothing behaviors will not put child back to sleep, that is NOT the goal
- Record parent & child behavior each night
- Must use all the other interventions (i.e., antecedent controls) as well!

Behavioral Protocols: Points of Consideration

- Use baseline data to establish initial goals (e.g. fading or bedtime, duration of comforting)
- Consider caregiver and family readiness…what can be reasonably tolerated with support?
- Choose carefully the time to initiate intervention (e.g., vacation, family obligations, anticipated disruptions)
- Prepare caregivers for extinction bursts & the gradual & sometimes variable nature of behavioral change; establish reasonable expectations
- Help caregivers identify & problem-solve around potential roadblocks, both from the start & throughout

Intervention: "Level 3"

Why are the behavioral protocols working…what might be getting in the way?

- Parent thought patterns/beliefs
  (e.g., attributions re: child's behavior, beliefs about parental roles/duties/inadequacy)
- Family psychopathology
  (e.g., in a sibling or another family member)
- Marital conflict
- Family-systems issus
  (i.e., how is the child's sleep problem helping to maintain "the system")
- Attachment-related issues; "Ghosts in the nursery"

Intervention: "Level 3"

- A variety of clinical approaches may be useful in this phase of intervention
  - Cognitive-Behavioral
  - Interpersonal
  - Attachment-based
  - Psychodynamic
  - Family systems

- May also be appropriate to make referrals (e.g., marital counseling, individual therapy, psychiatric consultation)

Important to remember…

- The child must be in the appropriate state in order to learn & be effective
- **…..& so does the parent** (i.e., parent's emotional state & energy has a reciprocal effect)
- Sleep problems impact BOTH the child's and the parents' ability to learn, grow and function adaptively

Resources

Baumeister, R. & Vohs, K. (Eds.). (2004). *Handbook of self-regulation: Research, theory, & practice*. New York: The Guilford Press.

Blampied, N. & France, K. (1993). A behavioral model of infant sleep disturbance. *Journal of Applied Behavioral Analysis*, 26(4), 477-492.

DeGangi, G. (2000). *Pediatric Disorders of Regulation in Affect and Behavior: A Therapist's Guide to Assessment and Treatment*. San Diego: Academic Press

Durand, M. (2005). *Sleep Better: A Guide to Improving Sleep for Children with Special Needs*. Baltimore: Paul H. Brookes

Sadeh, A. & Anders, T. (1993). Infant sleep problems: Origins, assessment, and intervention. *Infant Mental Health Journal*, 14(1), 17-34.