



NATIONAL INSTITUTE OF BUSINESS MANAGEMENT
HIGHER NATIONAL DIPLOMA

STATISTIC FOR COMPUTING

Submitted to:

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Sleep Patterns and Cognitive Performance

Step 1:

1. Sleep Dimensions

- **Sleep Duration**
 - Optimal sleep duration: 7-9 hours per night
 - Short sleep duration: Less than 6 hours
 - Long sleep duration: More than 9 hours
- **Sleep Quality**
 - Sleep latency (time taken to fall asleep)
 - Sleep efficiency (ratio of time asleep to time in bed)
 - Sleep fragmentation (frequency of awakenings)
- **Sleep Architecture**
 - REM sleep (rapid eye movement) : [Important for emotional regulation, Crucial for procedural and spatial memory consolidation]
 - NREM sleep (non-rapid eye movement), including stages 1-4 (with emphasis on slow-wave sleep) :
 - ✓ Stage 1: Light sleep, transition between wakefulness and sleep
 - ✓ Stage 2: Onset of sleep, body temperature drops, heart rate slows
 - ✓ Stages 3 and 4: Slow-wave sleep (SWS), deepest sleep, critical for declarative memory consolidation

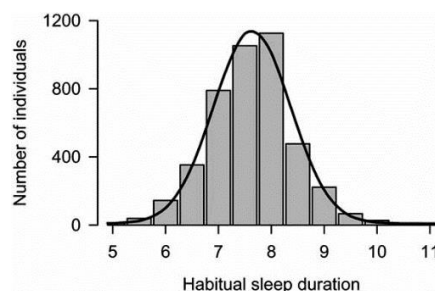


Figure 1 : self-rated sleep duration

2. Individual Differences

- **Circadian Rhythms**
 - Alignment of sleep patterns with natural circadian rhythms

- Chronotypes (morningness vs. eveningness)
- **Age**
 - Young adults (adolescents and young adults)
 - Older adults (aging populations)

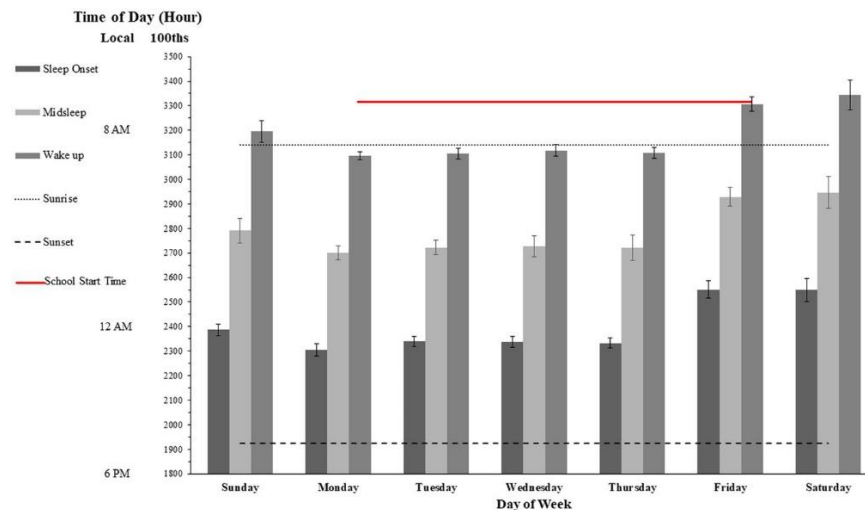


Figure 2 : Cognitive control, bedtime patterns

3. Sleep Disorders

- Insomnia
- Sleep apnoea
- Restless leg syndrome

4. Cognitive Domains Affected

- **Attention**
- **Memory**
 - Working memory
 - Long-term memory
 - Declarative memory (facts and knowledge)
 - Procedural memory (skills and tasks)
- **Executive Function**
 - Decision-making
 - Problem-solving
 - Emotional regulation

5. External Factors

- **Environmental Factors**
 - Light exposure
 - Noise levels
- **Lifestyle Factors**
 - Technology use (screen time)
 - Stress levels
 - Physical activity

Relationships and Interactions

Moderating Variables

1. **Circadian Rhythms**
 - Misalignment (e.g., shift work, jet lag) disrupts cognitive performance-e.
 - Chronotype influences peak cognitive performance times.
2. **Age**
 - Young adults need more sleep and are more vulnerable to sleep deprivation.
 - Older adults experience changes in sleep patterns that contribute to cognitive decline.

C. Mediating Variables

1. **Sleep Disorders**
 - Sleep disorders will negatively impact both sleep quality and cognitive performance.
 - Effective treatment of sleep disorders can improve cognitive outcomes.

D. External Factors

1. **Environmental Factors**
 - Better sleep environments like less noise, appropriate light exposure will enhance sleep quality and cognitive performance.
2. **Lifestyle Factors**

- Healthy lifestyle choices like reduced screen time, regular physical activity will improve sleep quality and cognitive function.

References to Base Research Papers

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Step 2:

Conceptual Framework

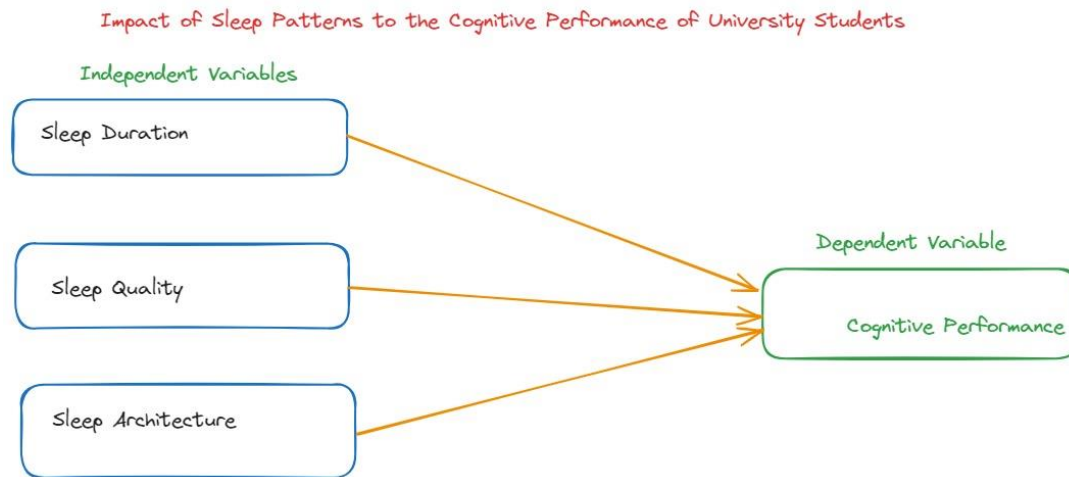


Figure 3: Conceptual Framework

Proposed Questionnaire

Sleep Duration:

- How many hours of sleep do you get on average-e?
- Getting an optimal amount of sleep each night.
- Often I sleep less than 6 hours per night.
- Often I sleep more than 9 hours per night.

Sleep Quality:

- I usually sleep within 30 minutes after going to bed.
- I often wake up more than once during the night.
- I wake up feeling refreshed in the morning.
- I spend most of my time in bed pretending to be asleep.
- I frequently being disturbed while sleeping during the night.

Sleep Architecture:

- I often have vivid dreams which I'll remember-r in the morning.

- I believe that I get enough REM sleep each night.
- I often experience deep, uninterrupted sleep during the night.
- My body temperature drops and my heart rate slows as I fall asleep.
- I wake up from light sleep by feeling refreshed and ready to start my day.