

## Introduction

### Purpose of the evaluation

The evaluation is necessary to determine whether or not the Lafont family improved their sleep habits (began getting enough sleep) after changing their bedtime and waking routines.

### Goals, Objectives

Over the summer break, the Lafont family developed poor sleep habits. In order to improve sleep habits, these plans were enacted:

- Determine the correct number of hours of sleep based on age. And count backwards from the waking time to determine the correct bedtime.
- Commit to have each family member going to bed at their personal, best time and getting up on time each morning.

### Evaluation questions

1. *Personalizing the flexible aspects of the program:* How many hours are needed for sleep, by age? What factors are keeping you up late?
2. *Determining the degree of compliance by self-report.* How well or how often did the subjects comply with their personal bedtime routine?
3. *What changes need to be made to improve this program?*

## Evaluation Design

### Description of formative and summative phase

Formative evaluation was based on the daily self-report of participants, over the course of one week. Initially, an app for mobile devices was used to record sleep duration and quality, but formative feedback from participants indicated that the app was unreliable and caused the phone to emit a high-pitched noise that disturbed the sleep of some family members. Based on this formative feedback, the app was deleted from the study.

In the summative phase posttest findings were compared to similar, pre-test baseline data. An interview followed one subject's posttest to allow for elaboration of answers given.

### Quantitative or Qualitative or mixed

The pretest, daily self-report, and posttest consisted of both qualitative and quantitative questions (mixed data collection). A qualitative interview followed the posttest to investigate the answers given.

## Data sources

Data sources include the pretest survey, the daily self-report, the posttest survey, and the one-on-one interview.

## Data collection methods

- Questionnaire (2)
- Self-Report
- Interview

## Data analysis

Quantitative data analysis was limited due to small population size. Therefore, I used individual comparison of questions from the pre and posttest. The qualitative portions of the pre and posttest and the interview, were also evaluated individually, to identify significant words or ideas.

## Findings

The formative evaluation was based on the daily self-report, over the course of one week. The data indicated that, more often than not, participants did adopt the program and make daily changes in their sleep habits. The summative phase was based on a comparison of mixed quantitative and qualitative posttest findings to similar, pre-test baseline data as well as an examination of the self-report. A qualitative interview followed the posttest to investigate answers given.

## Conclusions with supporting evidence and/or data

- *Mobile devices and watching TV are the primary reasons for staying up late.*
  - EVIDENCE: All subjects agreed on the pretest, self-report, and posttest that electronics kept them up past their bedtime when they stayed up too late. This happened more often prior to the program.
- *Simply being intentional to go to bed on time helped overcome the lure of the electronics.*
  - EVIDENCE: Pretest average among subjects: 1.5 nights/week going to bed on time. Posttest average among subjects: 4.5 nights/week going to bed on time.
- *As the week progressed, motivation to go to bed on time waned.*
  - EVIDENCE: everyone went to bed and woke on time for the first two nights, but did no one got to bed on time the last two nights.
- *Committing to the program as a group was helpful.*
  - Qualitative data from pre and posttest had every person blaming “my family” (3 of 4) or “my parents” (1 of 4) for the late bedtimes. In the follow-up qualitative interview, Scott, an adult explained that the precipitating factor for changing the bedtime to an earlier time was that school would start for “the kids.”

- *Personal devices consistently interfered with getting to sleep.*
  - Though subjects blamed the TV and mobile devices, the self-report and the qualitative interview indicated that the only change consistently made was going to bed and turning off the TV. Everyone continued to use his or her devices in bed.

### **Limitations of the evaluation**

- The size of the sample did not allow for more sophisticated quantitative or qualitative analysis.
- All of the data was self-reported (questionnaires, self-report, interview). Some more objective data would strengthen the findings.
- The length of time was too short to determine if any lasting change occurred.
- The timing of the program was the week before school, which was somewhat motivating, but it is apparent that sleep habits vary depending upon the school year, so these findings could be different at different times of the year.

### **Recommendations/next steps**

Motivation to develop good sleep habits is lacking in this group. Scott said, "I know I need more sleep, but when I get home from work, I want to do what I want to do. If I want to stay up late and watch TV, I will do it." An intervention based on Keller's ARCS theory of motivation might be more helpful. More education about the importance of sleep, plus a reward-based system might be beneficial.

Of particular concern was the fact that the family recognized the problem of using mobile devices, but that behavior did not change. Sleep experts advocate suspending the use of electronics, at least 30 minutes prior to bed. All family members could benefit from adopting this habit.

In addition, Britta noted going to sleep and waking on time, but not sleeping well due to Scott's snoring. Scott also reported poor sleep quality regardless of the length of time in bed, "I mean, sometimes I go to bed on time and wake up exhausted. I am tired a lot. I don't really feel any different when I go to bed on time, so it doesn't feel like it matters." Further study as to the quality of sleep is indicated because enough time in bed does not necessarily equal quality sleep. In addition, since Scott complained about his poor quality of sleep, and Britta complained about his snoring, perhaps a medical sleep study for Scott would be beneficial for both of them.

### **Potential effects of recommendations**

Since the subjects all named electronics as a problem, it isn't as clearly a knowledge gap as it is a motivation/attitude gap, though some education could be helpful. Because compliance waned toward the end of the week and bedtime varies depending on outside influences like vacation and school schedules, increasing the motivational factors in this program might help produce lasting change.

Observing a period of at least 30 minutes with no electronic devices before bedtime would require significant changes for this family and, again, motivation. If this recommendation was adopted, sleep quality could improve and adherence to proper bedtime would likely become more consistent.

Studying ways to improve sleep quality could provide a much greater impact than simply studying sleep habits.

## Appendix

### Survey questionnaires

#### Pretest

1. Select your age and necessary number of hours for sleep per night:
  - a. 13-18 years >>> 8-10 hours
  - b. 18+ years >>>7+hours
2. What time do you need to wake each morning?
3. Counting backwards, what time do you therefore need to go to bed in order to get the recommended hours of sleep
4. How many nights per week are you getting enough sleep?  
0 1 2 3 4 5 6 7
5. If you're not getting to bed on time, then what is keeping you from that?

#### Posttest

1. Select your age and necessary number of hours for sleep per night:
  - a. 13-18 years >>> 8-10 hours
  - b. 18+ years >>>7+hours
2. What time do you need to wake each morning?
3. Counting backwards, what time do you need to go to bed in order to get the recommended hours of sleep?
4. How many nights per week are you getting enough sleep?  
0 1 2 3 4 5 6 7
5. If you're not getting to bed on time, then what is keeping you from that?
6. I am sleeping more per night now than before starting the program:  
DISAGREE 1 2 3 4 5 6 7 8 9 10 AGREE
7. What would you change about this program to improve your sleep habits?

### Self-Report

	<b>Got to bed on time?</b>	<b>Woke up on time?</b>	<b>Comments</b>
<b>Monday</b> <b>7/30/18</b>	YES NO	YES NO	
<b>Tuesday</b> <b>7/31/18</b>	YES NO	YES NO	
<b>Wednesday</b> <b>8/1/18</b>	YES NO	YES NO	
<b>Thursday</b> <b>8/2/18</b>	YES NO	YES NO	
<b>Friday</b> <b>8/3/18</b>	YES NO	YES NO	
<b>Saturday</b> <b>8/4/18</b>	YES NO	YES NO	
<b>Sunday</b> <b>8/5/18</b>	YES NO	YES NO	

## Interview questions

1. Your posttest shows that you went to bed on time more frequently during the week of the program than you did before the program. Why do you think this is the case?
2. Was there any benefit in tracking your sleep habits?
3. How helpful was it to commit as a group to change sleep habits?
4. What else could help you get in bed on time?

## **Consent form/letter**

**Title of Research:** Investigation of an Improved Sleep Routine Program

**Principal Investigator:** Britta Lafont, Graduate Student, UAB

**Sponsor:** Feng Sun, IDD 660

### **Purpose of the Research**

I am asking you to take part in a pilot study as a requirement for my graduate class, IDD 660. The purpose of this study is to determine if changes in your bedtime and waking routines will improve your sleep. A pilot study is a small-scale study that tests the effectiveness of a program, often to determine the feasibility of repeating the study with a larger population. In this case, the study will allow me to practice evaluation via the collection, analysis and reporting of data. This study will enroll four participants, including the principle investigator.

### **Explanation of Procedures**

If you agree to join the study, you will need to monitor and report on your sleeping and waking habits for one week. During this time, you will be asked to observe a sleep schedule, based on your age, and to record your bedtime and waking time, daily. The amount of time you will be required to devote to the study is less than five minutes, daily, for one week.

### **Risks and Discomforts**

There are no foreseeable risks or discomforts.

### **Benefits**

You may benefit from participating in this program if changes to your bedtime routine allow you experience more sleep, nightly.

### **Confidentiality**

Information obtained about you for this study will be kept confidential to the extent that the assignments for IDD 660 are kept confidential. The information from the pilot study will not be published.



**Voluntary Participation and Withdrawal**

Whether or not you take part in this study is your choice. There will be no penalty if you decide not to be in the study. You are free to withdraw from this research study at any time.

**Cost of Participation**

There will be no cost to you for taking part in this study.

**Payment for Participation in Research**

You will not be paid for the study.

**Legal Rights**

You are not waiving any of your legal rights by signing this consent form.

**Signatures**

Your signature below indicates that you have read (or been read) the information provided above and agree to participate in this study. You will receive a copy of this signed consent form.

---

\_\_\_\_\_  
Signature of Participant Date

---

\_\_\_\_\_  
Signature of Legally Authorized Representative Date