HSS407/DHS407/DS571 Spring 2024 In-class Lab III

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1. Research Question

KAIST students are known for sleeping late at night. Why do they choose to stay awake late at night?

2. Hypothesis

We hypothesized the common late-night habits of KAIST students may be influenced by their class schedules, which start as late as 9:00 AM. This later start time likely encourages students to stay up later, knowing they have the opportunity to sleep in the next morning.

3. Experiment Design

Participants will enroll in a Health Seminar course scheduled at 09:00 AM with mandatory attendance. They will be informed that class time may change after the midterm exams, but the specific objectives of the study will not be disclosed. This approach ensures participants remain unaware of the exact focus of the data collection, which will focus primarily on their sleep patterns.

3.1 Experiment Variables

Controlled variables	- Course - Class starting time - The number of participants

Cause variable	- Class starting time: 7:30 AM, 09:00 AM, 10:30 AM
Effect variable	- Average changes in sleeping starting time (mean + std)

3.2 Experiment Procedure

3.2.1 Phase 1: Baseline Measurement

All participants will attend a health seminar course scheduled at 09:00 AM with mandatory attendance. This phase will last for two months before the midterm exams. This setup is a control period to gather baseline data on participants' general health and sleep patterns.

3.2.2 Phase 2: Intervention

After the midterm exams, participants will be randomly divided into two groups of 30 each. One group will attend the seminar at 07:30 AM, and the other at 10:30 AM. This phase also lasts for two months.
We will randomly divide the participants into 2 groups each consisting of 30 people with 15 early sleepers and 15 late sleepers. The seminar time will change from 09:00 AM to 07:30 AM for one group and to 10:30 AM for the other group. They will continue to take the course for two more months. We will collect the data on their sleep schedule during the semester in which the experiment is conducted, using the Fitbit watch we provided.

3.2.3 Phase 3: Data Analysis

In the final phase of our study, we will conduct an independent sample t-test to analyze the sleep data collected from the two groups. This statistical method will help us determine if there are significant differences in the average bedtime changes between students attending classes at 7:30 AM and those attending at 10:30 AM.

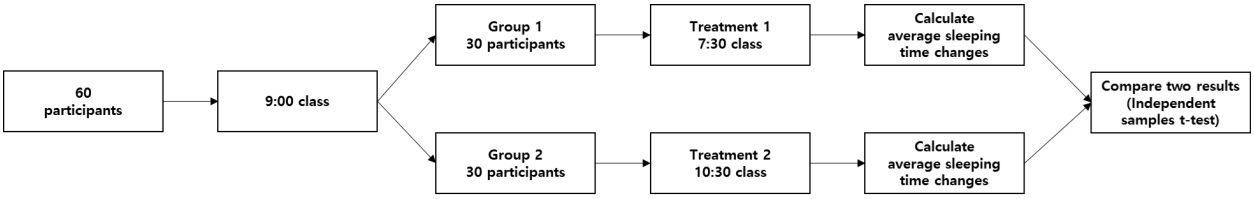

Figure 1. Experiment Procedure

3.3 Expected Results

We anticipate that the students' sleep time will differ in phase 2 from what we observed during phase 1 of the experiment. Students who were assigned to 7:30 AM classes are expected to adjust their bedtime to earlier hours, whereas those scheduled for 10:30 AM classes are likely to go to bed later.

3.4 Ethical Considerations

We require approval from the Institutional Review Board (IRB) to collect data from Fitbit watches. Additionally, participants must provide informed consent to authorize the use of this data for research purposes.