More College Freshmen Report Having Felt Depressed

By ALAN SCHWARZ  FEB. 5, 2015

High numbers of students are beginning college having felt depressed and overwhelmed during the previous year, according to an annual survey released on Thursday, reinforcing some experts’ concern about the emotional health of college freshmen.

The survey of more than 150,000 students nationwide, “The American Freshman: National Norms Fall 2014,” found that 9.5 percent of respondents had frequently “felt depressed” during the past year, a significant rise over the 6.1 percent reported five years ago. Those who “felt overwhelmed” by schoolwork and other commitments rose to 34.6 percent from 27.1 percent.

Conducted by the Cooperative Institutional Research Program at the
11% of Dartmouth students were diagnosed with depression in 2014.

12% reported depression has having an impact on academic performance.

28% have seen a mental health counselor in 2014.
REPORT OF MIDTERM STANDING

The Office of the Dean of Undergraduate Students is in the process of assessing the current academic progress for the student listed below. An estimated grade from you, along with any relevant comments, would be especially helpful.

NOTE: Requests of this sort are made for a variety of reasons, and do not necessarily imply any deficiency in the student's current or past academic work.

Professor: Campbell, Andrew T.

Midterm grade: □ Actual
□ Estimated

□ Check here if grade not yet assigned

Comments:

Instructor

Date:

Dean Larissa Hopkins

Please return to Himman Box 6064 by February 9, 2015.
why do students burn out, drop classes, do poorly, even drop out of college when others excel?

what is the impact of stress, mood, workload, sociability, sleep and mental health on academic performance?

is there a set of behavioral trends or signature to the semester?
StudentLife study

48 students over 10 week Spring 2013 term
• 10 female, 38 male CS students
• 30 undergraduates, 18 graduates
• 8 seniors, 14 juniors, 6 sophomores, 2 freshmen, 3 Ph.D students, 1 second-year Masters student, and 13 first-year Masters students
• 23 Caucasians, 23 Asians and 2 African-Americans.
behaviors
activity

sitting

standing

walking

running
around conversation

face-to-face conservation: duration and frequency
Sleep duration

**Activity Feature**
stationary duration

**Sound Feature**
silence duration

**Light Feature**
darkness duration

**Phone Usage Features**
Phone-lock, charging, phone-off duration

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**Linear regression model**

\[
Sl = \sum_{i=1}^{6} \alpha_i \cdot F_i, \quad \alpha_i \geq 0
\]

\[
\min_{\alpha_i} \sum_{j=1}^{4} (Sl^j - \sum_{i=1}^{6} \alpha_i \cdot F^j_i)^2
\]
partying
behavioral trends
class attendance

A heatmap showing class attendance over weekdays and time slots from 8 am to 8 pm.
sleep

- Number of instances:
  - 0
  - 50
  - 100
  - 150
  - 200
  - 250

- Time of day:
  - 9 pm~10 pm
  - 10 pm~11 pm
  - 11 pm~12 am
  - 12 am~1 am
  - 1 am~2 am
  - 2 am~3 am
  - 3 am~4 am
  - 4 am~5 am
  - 5 am~6 am
  - 6 am~7 am
face-to-face conversation
activity duration

mid-term

deadlines
activity duration

day

number of deadlines
stress and affect

mid-term
gym visits

- Number of deadlines:
  - 0
  - 0.5
  - 1
  - 1.5
  - 2
  - 2.5

- Day:
  - 1
  - 8
  - 15
  - 22
  - 29
  - 36
  - 43
  - 50
  - 57
  - 64

- Gym visits:
  - Mid-term

- Graph lines:
  - Blue: deadlines
  - Orange: gym

- Graph axis:
  - Y-axis: number of deadlines
  - X-axis: day
class attendance

![Graph showing class attendance and deadlines over days]

- **Day**: 1 to 64
- **Attendance**: 0.3 to 1.2
- **Deadlines**: 0.3 to 1.5

**Mid-term**

- The graph indicates a drop in attendance and deadlines after day 36, which corresponds to the mid-term period.
partying trends across the term

<table>
<thead>
<tr>
<th>Week</th>
<th>Party Duration (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>5</td>
<td>90</td>
</tr>
<tr>
<td>7</td>
<td>135</td>
</tr>
<tr>
<td>9</td>
<td>180</td>
</tr>
</tbody>
</table>

- **Mid Term**: Week 3 to Week 5
- **Green Key**: Week 7 to Week 9
when do students party?

when do students study?
mental health
depression

sleep duration *
conversation frequency (day) **
conversation frequency (evening) *
number of co-locations *

*p ≤ 0.05, **p ≤ 0.01
why are these results important?
24/7 passive sensing on smartphones is here at last!
because we find significant correlations between passive and objective sensor data from smartphones and outcomes from validated mental health “gold standard” surveys such as PHQ9
future
predicting grades
Connecting the stakeholders

student

professor

friends

student dean

the doctor

family
predicting depression
Big thanks

Rui Wang and Xia Zhou (Dartmouth)
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Dror Ben-Zeev (Dartmouth PRC)
Tanzeem Choudhury (Cornell)
Randy Colvin and Stefanie Tignor (Northeastern)
Sam Gosling and Gabriella Harari (UT Austin)
Catherine Norris (Swarthmore)
StudentLife is the first study that uses passive and automatic sensing data from the phones of a class of 48 Dartmouth students over one term to assess their mental health (e.g., depression, loneliness, stress), academic performance (grades across all the courses and cumulative GPA) and behavioral trends (e.g., how stress, sleep, visits to the gym, etc. change in response to college life).