

Procrastination and Insurance

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Procrastination

Procrastination dates back to 800BC when Hesiod wrote to not “put your work off till tomorrow and the day after.”

Everyone procrastinates, but not everyone is a procrastinator.

Types of Procrastinators

- Arousal- thrill seekers
- Avoiders- fear of failure, and concerned with other’s opinions
- Decisional- cant make a decision and delays responsibilities

More people are considered procrastinators

- 20% today, compared to 5% in 1978

Social media has make procrastination worse due to more distractions.

- It has made it harder to be efficient for the amount of time spend completing a task
- Many students will check their phone at least 6 times in an hour when they’re doing homework or studying

85-95% of students have this problem

- “It’s second nature”
- They like the rush they get

Insurance

When you ask a student what insurance is many will respond, “that thing you need in order to drive your car.”

Formally, it is the practice or arrangement for which a company produces a guarantee of compensation for a specified loss in return for a premium.

It’s the transfer of loss through different techniques, and with risk management there are ways to limit the amount of loss.

Businesses and individuals use insurance to transfer the risk of fire, death, profit loss and other risks so they are not financially distraught in these situations.

Insurance is a unique business because they incur expenses that are not easily calculated, and vary depending on the number of claims in a given year.

Health Insurance

Affordable Care Act (ACA, Obamacare) encourages preventative care. Yearly checkups prevent an individual from being extremely sick, which keeps the amount per claim lower.

- Overtime premiums are expected to lower
- Decrease the amount of high valued claims

Average premium in MI is \$230, and this varies state to state.

Factors that affect health insurance include: age, family history, gender, body mass index, tobacco usage, profession, marital status, and zip code.

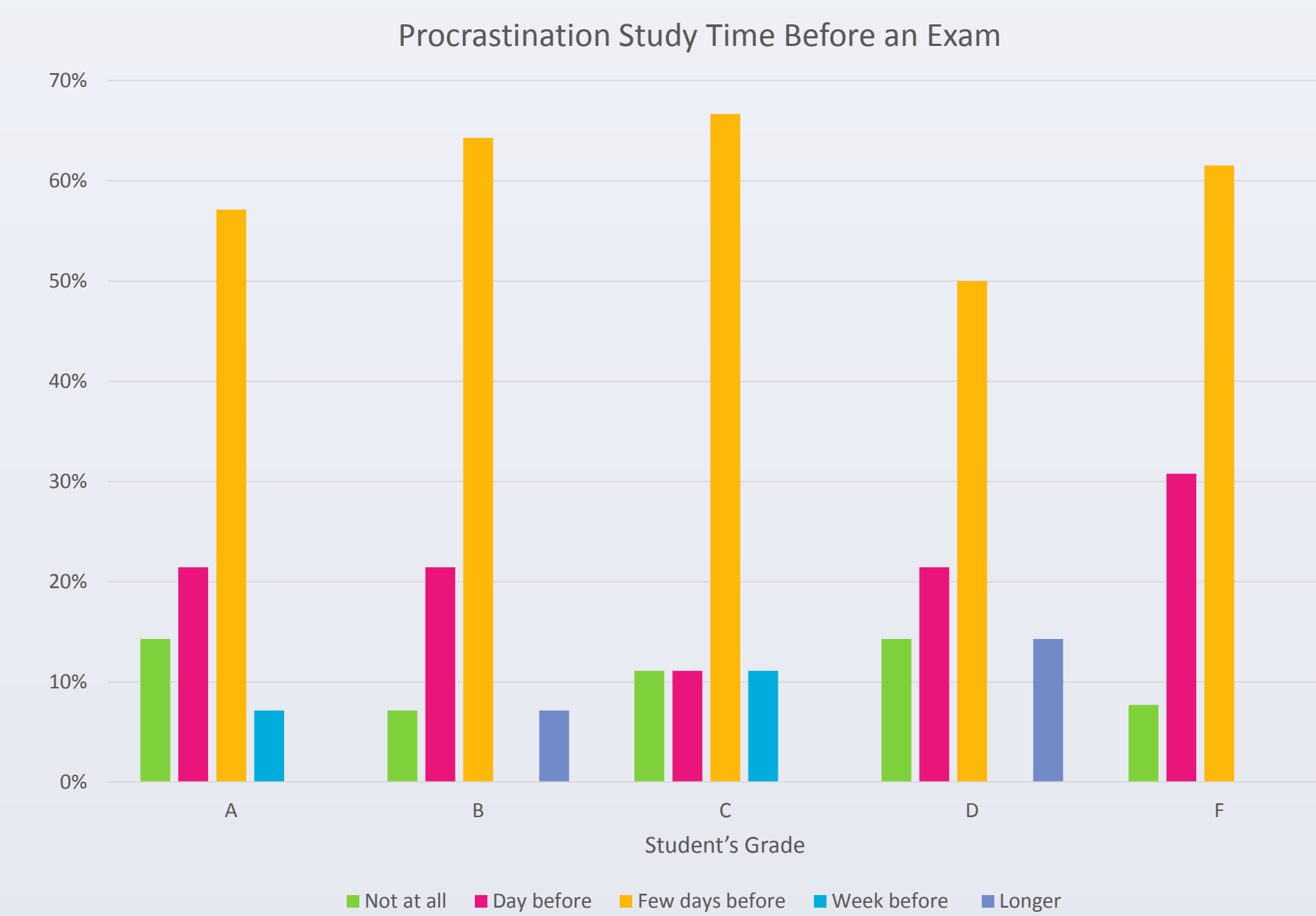
Every insurance uses different determining factors, which is why premiums vary extremely from one insurance company to another.

- Some insurance companies put more emphasis on credit score, whereas others put more on lifestyle choices, and a third company could put more emphasis on BMI.
- This is another reason why Obama initiated uniform health care.

Math 115 Students and Procrastination

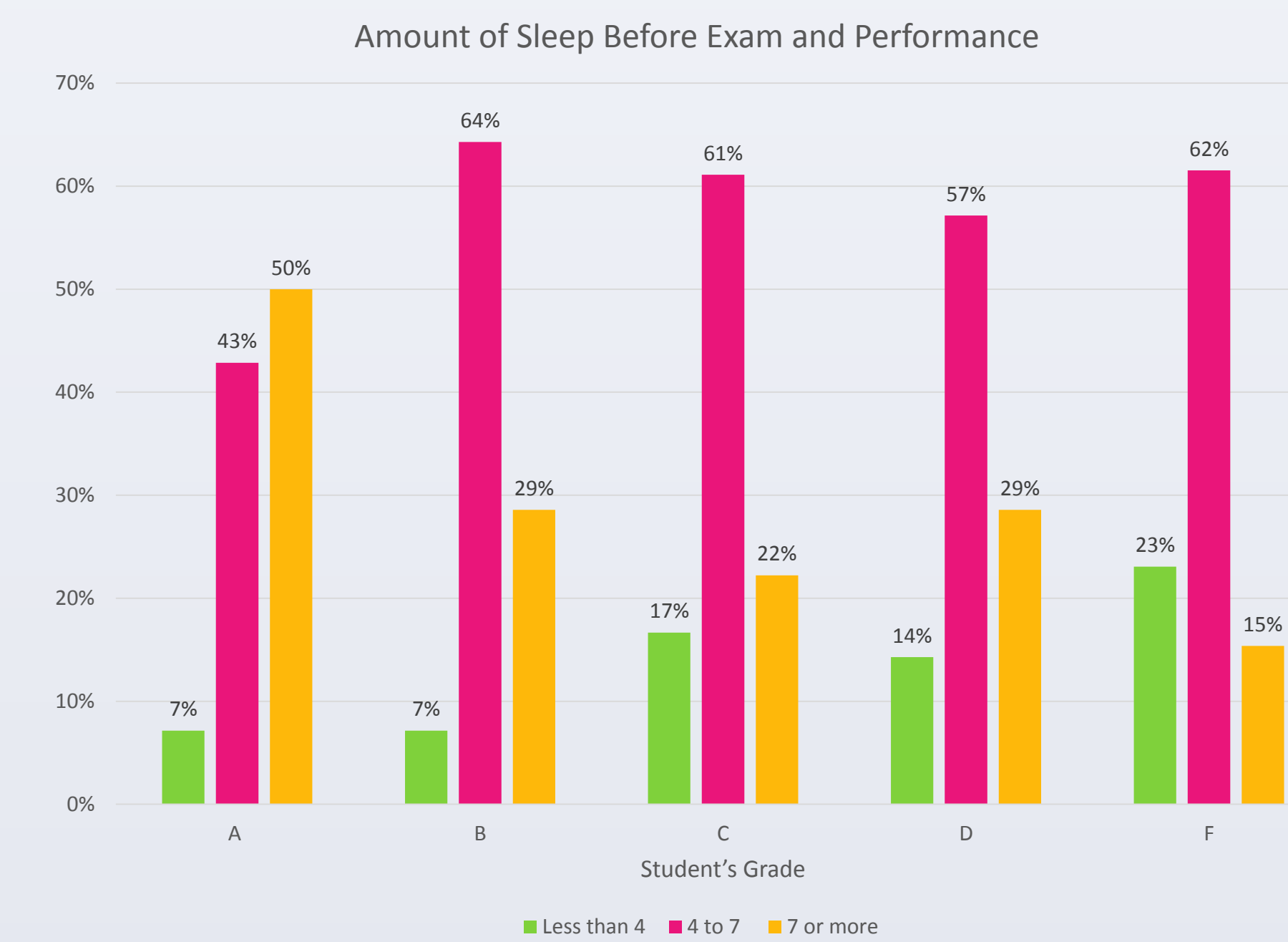
73 MATH 115 Ferris State University students were asked, “How long did you wait to study for the exam?”

These results are separated by the grade each student received.



73 MATH 115 Ferris State University students were asked, “How many hours of sleep did you get before the exam?”

These results are separated by the grade each student received.



Results

As observed, most students study only a few days before, and many only the day before.

The grade percentages are not too clear on if procrastination is correlated to the grade received. Rather study time could be used inefficiently for those with low grades but longer preparation.

Many students admitted to procrastinate by using their cellphones, social media, and electronic games during designated study times.

We see students with A's average the most sleep the night before (more than 7 hours is 50%), compared to the students with F's who slept the least the day before the exam (less than 4 hours is 23%).

Results show procrastination delays students from starting to studying or use study time inefficiently, which then alters their sleep schedule and results in a lower exam score. Whereas, non-procrastinators study efficiently and allocate their time better to get a longer night sleep before an exam.

Insurance Premium Calculations

Using the law of large numbers actuaries are able to predict how many losses will occur within a group.

The more people, the more predictable loss becomes. It is nearly impossible to predict when a single person is going to die, but it is easier to predict what percentage of people will die in any upcoming year.

Insurers use average risk along with mortality and morbidity charts to predict and determine a premium rate (through many charts of data). Actuaries are the ones in charge of calculating and finding trends for each group of people (i.e. 16-24 year old females) through varying techniques and charts of data.

If premium increases, they analyze and determine how to change premium prices, or other possible changes to keep the insurance company at the ideal rate of return.

- Have a flat rate increase
- Increase the rate to a certain group typically causing the increase, and decrease the rate to the group of people not responsible for the increase.

Implication of Premium Calculation

Number of Claims	Percent Chance	Number of Claims	Percent Chance
0	60%	0	60%
1	30%	1	30%
2	7%	2	7%
3	3%	3	3%

$$\text{Premium} = E(\text{number of claims}) \cdot E(\text{amount of claims})$$

$$E(\text{Number of claims}) = (0 \cdot 0.6) + (1 \cdot 0.3) + (2 \cdot 0.07) + (3 \cdot 0.03) = 0.53$$

$$E(\text{amount of claim}) = (5000 \cdot 0.1) + (10000 \cdot 0.35) + (15000 \cdot 0.5) + (20000 \cdot 0.05) = \$12,500$$

$$\text{Premium} = 0.53 \cdot 12500 = \$6,625$$

Risks of Procrastination

Risks stem from a lack of self-control, which stems into being easily distracted. They have higher stress levels, because they become back-logged with what needed to be done earlier.

Heath problems include worse immune systems, stomach problems, and insomnia, depression, and anxiety.

Ferrari and Pychyl predict higher levels of alcohol consumption (of those who already drink) for procrastinators.

Procrastination destroys teamwork, they are less productive in a work environment which results in less efficiency, they shift responsibilities, and essentially a waste of resources.

Risks also involve private relationships, procrastinators have higher divorce rates, which can cause financial instability.

- Environmentally influenced, so they can cause others in their lives to procrastinate (such as children or spouse).

Procrastination Risks for Insurance Companies

Procrastinators wait to pay their bills resulting in late payments, which results in unpredictable income for insurance companies.

Inversely affected, credit scores will go down.

- Low credit scores are found to have a positive correlation (not causation) with more frequent claims.
- Thus a greater loss to an insurance company for those policies written to the group of procrastinators

Procrastination can be an indicator to risks for insurance companies In general, those who wait spend less time on a project, and make more mistakes.

Heath Problems such as worse immune systems, stomach problems, and insomnia, depression, and anxiety will be a higher cost to insurance companies due to medication through drugs or therapy.

Preventative care is more cost effective, so a procrastinator is more costly to insurance companies because they wait to go to the doctors until absolutely needed. The longer the doctor delay is the higher chances the medical problem will be more severe and costly.

Future Implications

Insurance companies all use different factors to come up with premiums. Say Allstate used procrastination as part of their insurance profiles on health insurance.

How would this affect premium prices? The 20% of people who are procrastinators would receive an increase in premiums costs (4% increase). The 80% whom are not, would receive a decrease in costs (1.33% decrease).

Health Insurance Example

Michigan average premium is \$230 (lets say for 1,000 insured 50 year old females), which has increased to \$240 this past year and the insurance company needs a way to increase premiums.

The data shows that the increase is due to lack of preventative care, so the actuaries do not want to charge everyone \$10 more they want to have the procrastinators pay more since they hold a higher risk.

So rather than charging everyone \$240 for health insurance, the 20% of the population of procrastinators will pay \$280, and the non procrastinators will pay \$217.50.

This way the rate of return stays the same for the insurance company, but it changes the allocation of payments.