



*The Science
Behind Dreams*

By Chloe and Yuna

Purpose/Question

What is the science behind dreams?

And how does what we do before bed / our emotions affect our dreams?

We are going to do an experiment with our sleep to see what are dreams are and chart our results and see our data is!

Hypothesis: We think we dream when our minds are clearing, and are emotions trigger what kind of dream we have whether its a nightmare or a good one, which changes the type of dreams we have

*What is the Science
behind dreams?*



The science behind dreams

Dreams don't really mean anything our brain just pulls random thoughts and imagination from our mind. Dreams mostly occur during the Rapid Eye Movement (REM) stage. Scientists performed an experiment. They used an electroencephalogram (EEG) to measure which sleep stage people were in. The people who were in the REM stage remembered their dreams while people woken up in a different stage did not.

Another study found that vivid, strange and emotional dreams (the dreams that people usually remember) are linked to parts of the amygdala (processes helps remember emotional responses) and hippocampus (important in short and long term memory)

Another study found that less REM sleep reduces our ability to understand complex emotions.

And a different study found that dreams are generated or transmitted through the right inferior lingual gyrus (located in the visual cortex)

Why Do We Dream

Dreams assist us in processing feelings by allowing us to remember them. We retain the recollection of the emotion in this manner, but the emotion is no longer present.

Dreams have been related to memory processes in the hippocampus, and dreaming has been linked to thoughts, according to research. Our anxiety is reduced as a result of this. Every REM sleep loss has been attributed to, according to studies this might be linked to mental disorders

What causes dreams?

REM sleep activates the brainstem, which causes dreams. Few people believe that such dreams are alerts, but these are only theories; scientists believe that dreams are meaningless neural brain signals that spontaneously draw thoughts and imagery from our minds.

So, why do we dream the things we do? According to some hypotheses, dreaming is a way for the brain to absorb feelings, thoughts, and knowledge obtained during the waking day.

So what causes strange dreams? Strange dreams are caused by stress or traumatic events.

Some of the most common dreams are being chased, flying, driving, death and falling. Personally when I was younger I had quite a lot of dreams of falling of my balcony, and it actually felt like I was falling, so I can confirm that one

How long do dreams last?

There are 5 stages of sleep, and most vivid dreams happen in REM sleep. Dreaming can happen in other stages but we usually don't remember it.

Our brain goes into and out of REM every 1.5 to 2 hours. REM stages can last as short as 5 minutes and as long as 20 minutes. During your sleep we spend about $\frac{1}{4}$ of the time in REM sleep.

Some dreams can last a few seconds but usually it lasts 20 to 30 minutes. You usually have 4 to 6 even maybe 7 dreams per night. Nightmares usually happen later during our sleep.

What are the five types of dreams?

*Normal
dreams*



*Day
Dreams*



*Lucid
dreams*



*Awakening
dreams*



Nightmares





Experiment

How this experiment is going to work is we're going to test different types of movies and see how are dreams differ from our emotions (due to what we watched). We're going to collect our data and what different studies have shown. We are going to look at are data and see the differences, to compare and contrast. Procedure: Step 1: Watch a movie (different genre each experiment night) Step 2: Go straight to bed after the movie don't read, watch YouTube, go play a board game with your family, no just go to bed Step 3: Sleep just rest and dream like usual Step 4: Wake up and write down your dream Step 5: Wait a couple of days to repeat the process on another genre

This experiment is how we might find the answer to our question; how does what we do before bed / our emotions affect our dreams? Because as we learned from our previous research on some of our other slides our emotions do affect our dreams. So we ourselves are going to test it and see if our research is correct.

Day 1: Scary Movie

Name	Dream
Chloe	My dream was of a murderer coming out from under my bed my bed and then chasing and killing me
Yuna	My dream was zombie apocalypse and they were chasing me and i almost died.
Lauren	Her dream was about a hooded figure chasing her and her friend with a bloody knife
Other People	Over 100 people were asked and most of them had dreams of being chased or dying.

Day 2: Romance Movie

Chloe

After i watched a romantic movie, I had a dream about falling in love with this guy but then he moved away and we meet up later in life

Yuna

When I watched a romantic movie and the main character got married in my dream I did too.

Lauren

Had a dream of going to her sister's wedding

Other People

Over 100 people were asked, most people had dreams of their first love or being in a relationship

Day 3: Sad Movie

Chloe

I had a really sad dream about my family passing away and me being left all alone and I woke up in tears

Yuna

I had a dream of losing a pet that i loved and waking up by the sensation that i was dropping.

Lauren

Her dream was about losing her dog and her family left her alone.

Other People

Other people said they have experienced dreams of something they regret in life or family members dying and they have been left alone

Day 4: Comedy

Chloe

I had a really good dream of having fun with my friends hanging and going and doing fun things together

Yuna

I had a good dream and was laughing and having fun in my dream with other people.

Lauren

Had a dream about going on a roller coaster and every time they went around something good would happen like winning the lottery or getting a new puppy.

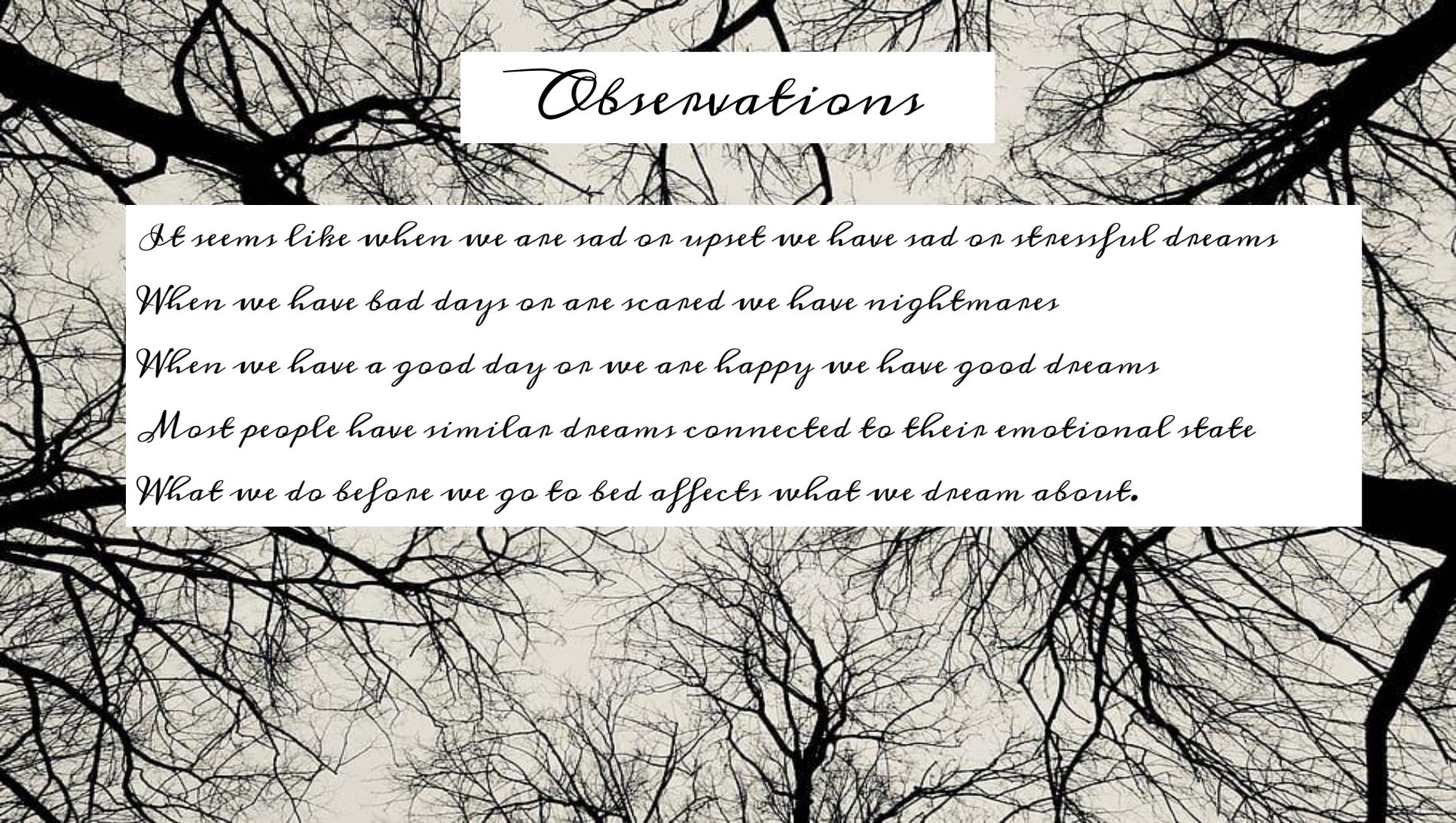
Other People

Other people say they had dreams of partying or winning the lottery.

Variables

Some variables could be watching different types of movies to see those effects. Another variable could be not watching a movie at all, instead of reading a book or drawing. We believe that these variables would vary in results just like the four we tested but would come off with a similar format and the general idea but not results because each has its own results.

The different variables for us were that when you're doing the project you will have similar results but each has its own bit of spice. For example, for our sad movie ones our results differ, Chloe found losing her family really sad whereas, Yuna and Lauren found losing a pet very sad, Chloe for instance doesn't have a pet so that didn't trigger her emotions.



Observations

It seems like when we are sad or upset we have sad or stressful dreams

When we have bad days or are scared we have nightmares

When we have a good day or we are happy we have good dreams

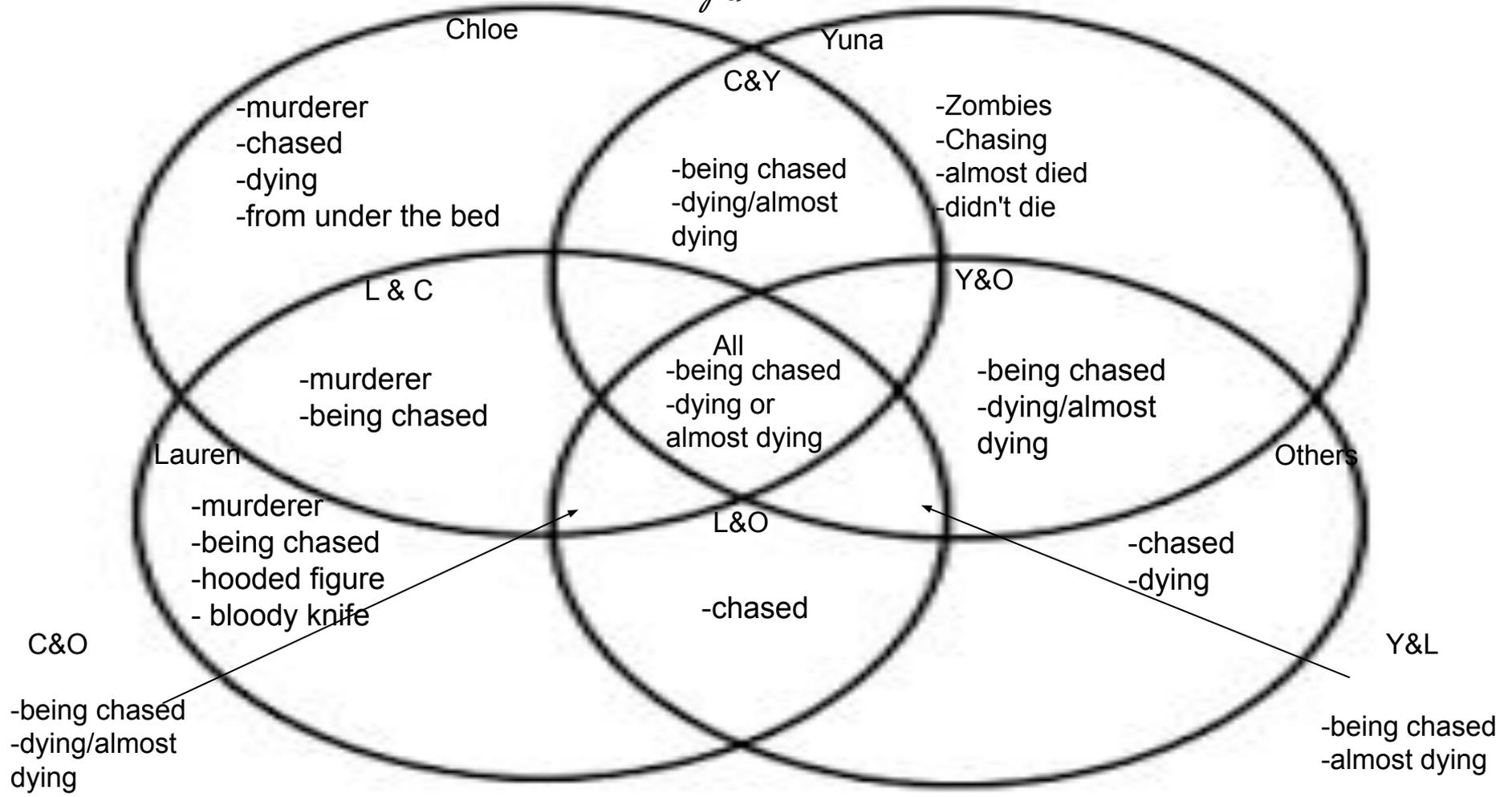
Most people have similar dreams connected to their emotional state

What we do before we go to bed affects what we dream about.

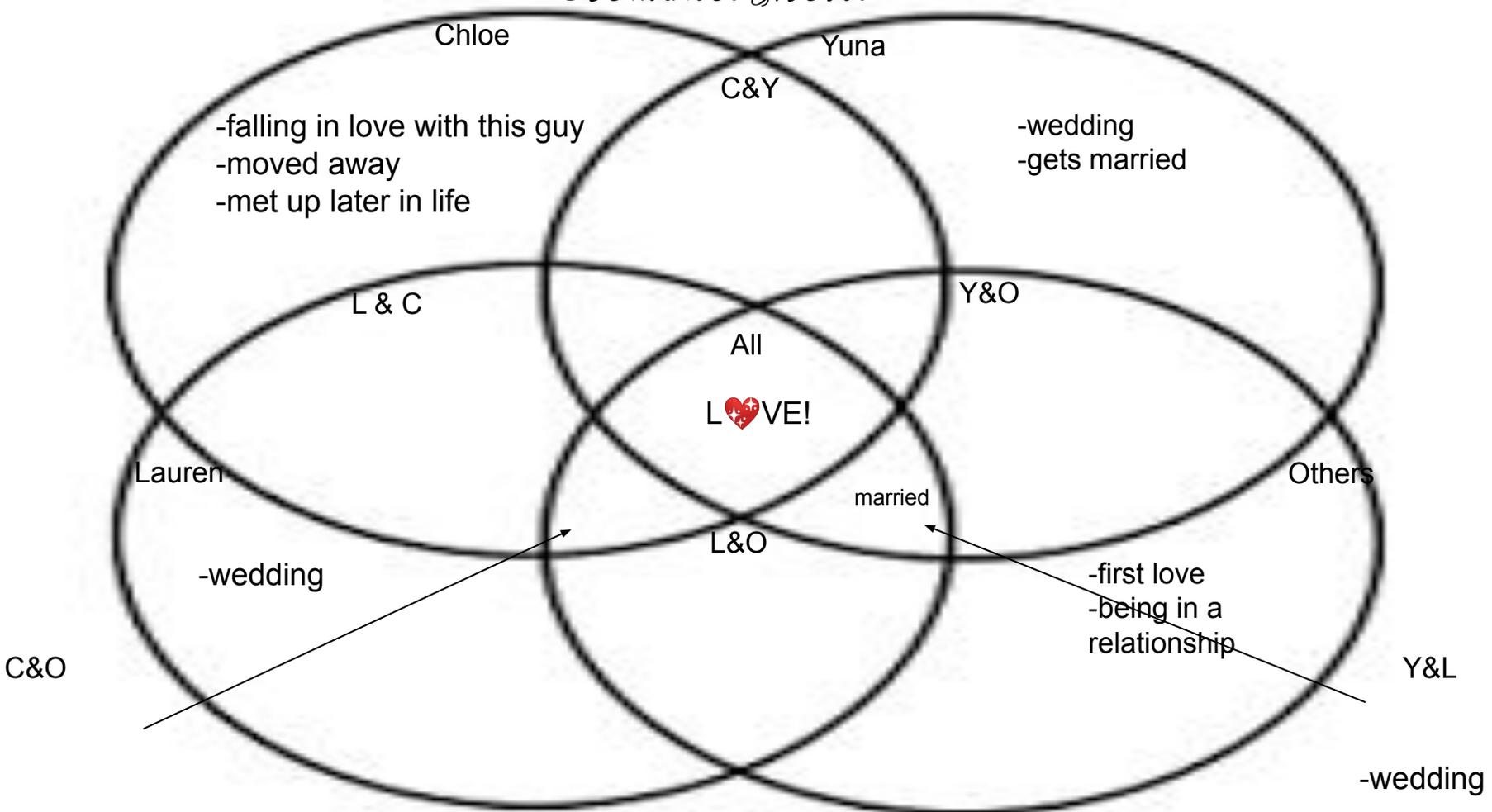


*Compare and
Contrast*

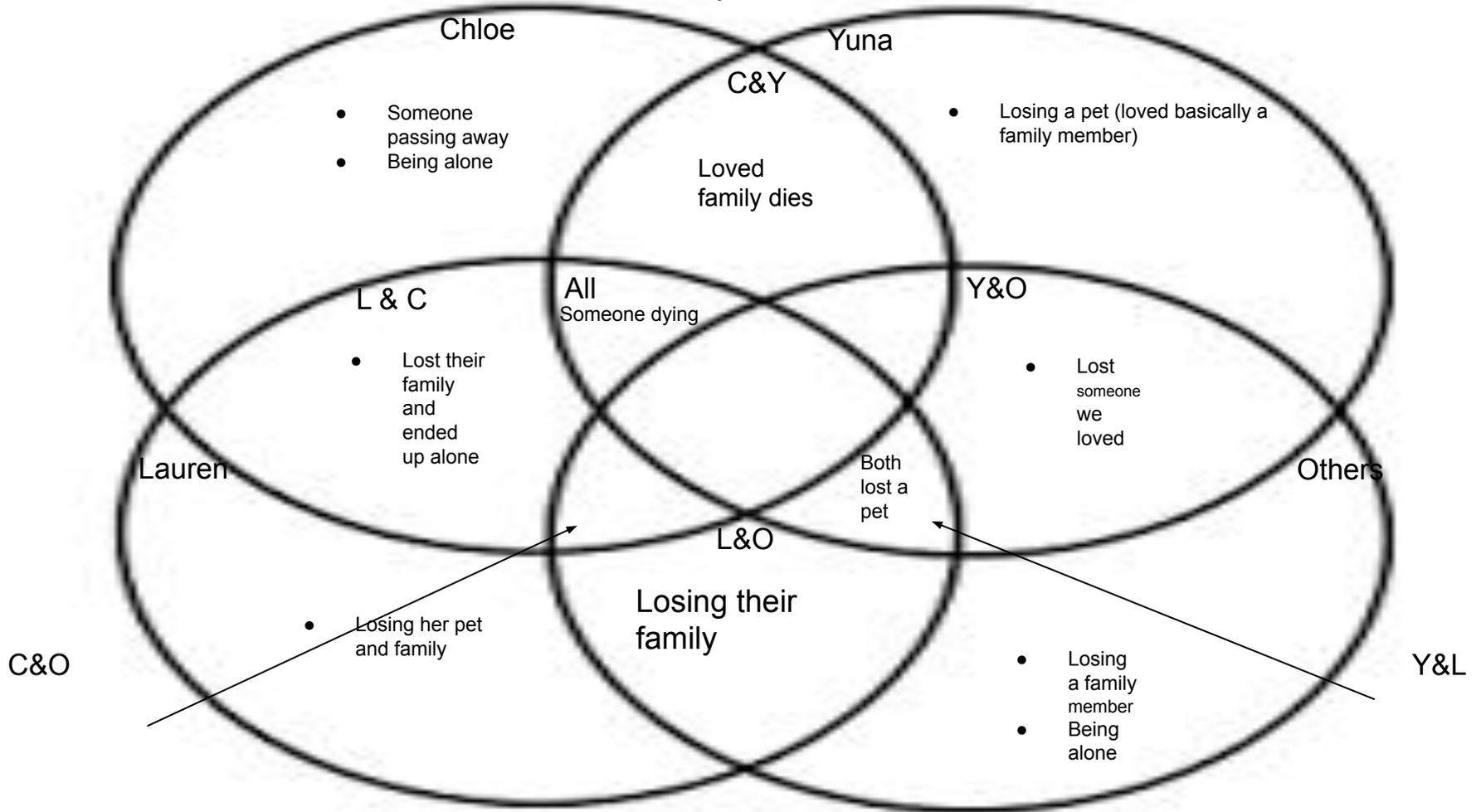
Scary Movie



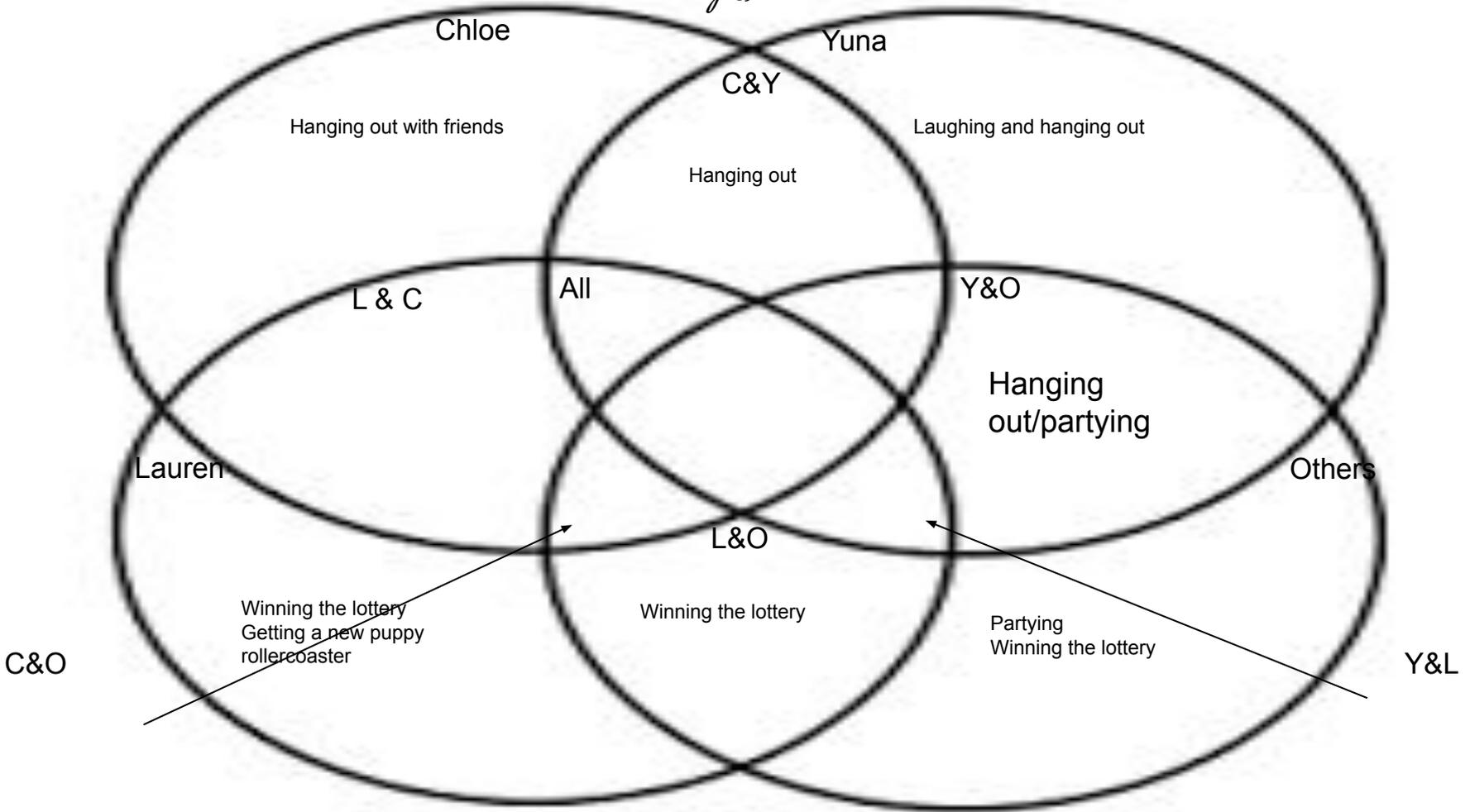
Romance Movie



Sad Movie



Comedy Movie





Conclusion

Main Conclusion

So the question does do our emotions really trigger different types of dreams? Yes it can! Our conclusion is our emotions trigger our dreams, it may sound crazy but really our emotions can do a lot of crazy things! Have you ever watched a horror movie and been so scared you had nightmares the next couple of nights? What about a movie that made you cry and you can't go to sleep because these sad thoughts keep popping up. Or a dream that was so good you wish it was real? In summary our emotions are really strong and can do a lot of crazy things like trigger nightmares and dreams. The things you watch affect your emotions because they either get you thinking in a certain way or make you remember parts of things and insert it into your own life through a dream. It just shows that our emotions are what cause dreams and affect them and sway them in a certain way. So in conclusion emotions cause dreams, fear causes nightmares, joy/laughter causes good dreams, and stress/sad things cause sad or stressful dreams.

Hypothesis

Our hypothesis was correct. Our brain triggers different things because of our mood and what we did before what we did before we went to bed. If we do or watch something before bed our dream would most likely relate to what we did or related to the genre.

Sources of error



Our sources of error are things where we do any sort of measurement or observation. This includes: How people remember their dreams. Dreams are usually difficult to remember so people may have incorrect memories, they may not be describing their dreams accurately or they may be making up their dreams because they don't remember them but feel pressure to report their dream. I (yuna) had to watch some genres of movies twice because i didn't remember my dream. we didnt always remember the dreams we had.

Application

We could use this information to get better dreams and to know what to watch (or not watch) or do if we want a certain dream. For example, if we want a good dream and not a scary one we could watch comedy instead of horror to have a happy dream. If we want more of a romantic dream and not a sad one we could watch a romantic movie. We could also improve other people's dreams by telling them what kind of movies that they should watch according to what kind of dream that they want to have that night. We would now what things influence our dreams and some that doesn't influences as much.

Links and Websites

Slide 4- <https://www.scientificamerican.com/article/the-science-behind-dreaming/>

Slide 5-

<https://www.healthline.com/health/why-do-we-dream#:~:text=One%20widely%20held%20theory%20about,that%20sleep%20helps%20store%20memories.>

Slide 6-

<https://www.piedmont.org/living-better/why-do-we-dream-when-we-sleep#:~:text=%E2%80%9CActivation%20Dsynthesis%20hypothesis%20suggests%20dreams,system>

Slide 7- <https://www.healthline.com/health/why-do-we-dream#the-role-of-dreams>