

COLLATERAL DAMAGE

When I arrived at Oxbow, I instantly connected with and spent almost every moment with my roommate. We felt so comfortable with each other, as if we had known each other for our whole lives. Her time at Oxbow ended abruptly for both of us on the last Saturday of September.

This film is an exploration of my feelings associated with her departure. How does one become lonely? This question led me to the intriguing world of neurology. Each time I unearthed new information, I became even more fascinated. If the brain does not feel rewarded by a social situation, the part of the brain that processes this response receives less blood, causing the brain to feel as though it has been harmed. In turn, the brain changes the memory into a bad experience. Trying to capture this evolution within the brain into an artistic translation seemed intense at the outset. While filmmaking is not my strong suit, I knew how rewarding it would feel when I saw the finished product.

As I have never lost someone before, this was a completely new experience for me. I learned so much from my research about how to deal with emotions that seemed too powerful to control. I let loneliness take over my life. It made my decisions for me, and by the time I wanted to try to move on from it, it was too late. Loneliness is real, but the more you feel sorry for yourself, the worse it becomes.

Mckenzie

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When someone is left with a void in their life, they begin to feel the symptoms of loneliness; it tortures them until something changes for them and they can return or create a new life for themselves. I recently endured losing a close friend and roommate while at a boarding school on the opposite coast from the people I am the closest to. This paper is an exploration of the events that created my loneliness, my reaction to being lonely, and how one's body (more specifically, the brain) reacts to the loneliness that the person is experiencing. I studied psychology, neuroscience, and memoir writing to conduct this paper.

Being lonely is something that is new to me; prior to coming to Oxbow I was constantly surrounded by my friends and family. There was never this feeling of being an outsider, or as if I don't fit in. Coming to Oxbow changed that. Not only am I on a completely opposite coast from my family, I am also the only person who holds a conservative viewpoint politically and socially. This election year made things even harder for me, for I am in a place where my peers don't want to understand my views makes it even harder. When I moved into Oxbow and met my roommate, it was amazing and we became the best of friends--the adventures we had together, discovering new things about each other. She opened up to me about her fears and her past experiences. We connected and truly understood each other. The week that we had to write about what we live for, I read her response and laughed with her because I didn't know what to say. I assumed that she was just blowing off the assignment. How are you supposed to react to someone telling you that the only reason they are still alive is because all of their other suicide attempts had failed? It was startling to think that this person (who always seemed so happy and content) could want to end it all. When she attempted suicide shortly after writing that statement (and didn't come back to Oxbow), I became so emotional and desperately tried to make new friends and be more open to try to salvage what would be the rest of my time in California. I completely shut down instead of putting myself out there like I tried to do the first time; I became a mere survivor.

The night that everything started, the night that my roommate decided that life wasn't worth living was the last time we saw each other. She called me three times before I woke up; I could hear the fear and the guilt in her voice. I could hear that something was wrong. She said "I went out because I was feeling super anxious and that I just needed to get away." This is something she often did; we left every day after school to do our homework somewhere else. I asked where she was and what she was doing. Her answers were quick,

"Do you want me to come meet you?" I yawned.

"No!" she replied quickly.

"Are you sure you don't want me to? I can get up now and head over to the market." Although I couldn't see her, I could tell that she was looking around, probably leaving the market. She was quick to answer to that also and she hung up. As I was texting with a friend from Michigan, I tried to call her back, not because I was worried, or sensed that something was "off," but because I wanted to see if she was also hungry and wanted to bring back food. I must have called her four or five times. I wish I could say after the first few that I got worried but I didn't; I just assumed that her phone had died. I got a notification from her friend, Anni; Anni had said some awful stuff to me before, so I was hesitant to read the text, but curiosity got the better of me.

"It's about Emma."—A

"Something's happened! It's an emergency!"—A

"You may not like me, but you need to help me, Emma won't answer!"—A

"Emma is back. Her phone was dead."—M

“She told me to tell you that she is ‘fine.’”—M

As I watched Emma come into the room, she was pale and her appearance was cold. When she made eye contact I felt as if I could see into her soul; those tired, dead, emotionless eyes that glazed over me lazily were the first hint that something was wrong. Emma set her bag down at the end of the bed, on top of the white blanket that hung over the end. She walked out of our room and left the door open. I didn't know where she was going, but she came back, and left the door open. She was so deliberate about it too. Emma left the door open just enough that she could see into the common room. Then she walked out again, and came back in. She sat down and looked at me. She didn't take her shoes off and I had been watching her, as I texted a friend from back home. I asked if she was okay and told her that she looked tired.

“Is the group back from bowling yet?” was the only response I received from her.

“No they aren't, but I got this text from Anni; she said it was an emergency.”

“I'm fine. She overreacted. My phone was dead.” She pulled her phone out of her bag and put it under her pillow to charge.

Then I heard knocking at the door from our room. It was the Napa police force and they were looking for Emma.

But Emma didn't leave the room. I thought it was strange that she didn't leave the room; we heard what he wanted, so why wouldn't she go? Eventually Emma left to go speak with him outside, and I stayed in my room and continued to talk to my friend in Chelsea about how odd people in California are. He agreed.

Izzy came in and asked questions that I didn't know the answer to. I tried to the best of my ability to tell her my truth. Jen then came in and asked me for Emma's purse and I asked if she needed her medication. She looked like she wasn't sure but answered “no.” I hesitated, wanting to grab it, knowing how badly Emma needed it, but didn't do anything. When Jen picked up the bag, I heard it rattle...the sound of pills rattling in a bottle. There were too many for it to be her usual pills, but enough for it to be mine.

After Jen left to give Emma her purse, I went into the living room to make popcorn and while I was there, someone asked me what was going on, if Emma was going to be okay.

I didn't actually know what had happened until another girl in my class that Anni had managed to get ahold of came and told me. Hearing from someone else that my best friend had taken too much of something because she decided that she didn't want to live anymore was horrific. Having to comfort the person who told me was worse. How was I supposed to handle this situation? How was I supposed to be strong when I had just lost my best friend? This girl... who didn't even really know her...got to cry on my shoulder while I hugged her and told her that it was all going to be okay...that it wasn't her fault. Of course, it wasn't her fault. The most she had talked to Emma was at Oxbow, even though they had gone to school together for years. Maybe she did feel bad for her, for me, for the family that really wasn't ready for this.

Sitting in that empty room, I realized why she gave me that look of absolute pity when I told her how excited I was for her to come back with me for Thanksgiving break. She looked at me like she felt so bad, and I didn't know why. I didn't know why then, but I do now; everything makes sense now. She looked at me like I was just a kid, who might one day understand that she was going through something that had spiralled way out of her control and couldn't be fixed by an antidepressant.

It didn't have to end this way...for her, for me. I could have stopped it all; I could have saved her life. But instead, I refused to see the signs that were everywhere, I knew Emma's past. I knew her truth of it and I saw her artwork about the past. I saw her artwork from the present --

Alice trapped in a bottle, floating on top of a sticky bubbly thick sea of NyQuil. I could see it in the poem that she wrote about what she lived for, the poem that only I had heard and that I had assumed was her way of blowing off the assignment.

“ I live because all of my other attempts at death have failed.”

That line should have been enough for me to go to someone or talk to someone about it. It was a cry for help that I ignored. Jen said that the day they went on the field trip and Emma didn't want to share that she felt something was going on. She thought she knew, but she had no idea how deep it went, or how long it had gone on.

I knew. I knew her better than I knew myself. I was there when she was on the phone with her doctor and her mother talking about how months before coming to Oxbow she drank three bottles of NyQuil. She called because she was worried about the night fevers she was getting. When the doctor told her that if she instead had Tylenol and not Benadryl based NyQuil she would have been dead, but it was highly unlikely that it was causing the night fevers.

I knew the motive behind her suicide too, she hated the fact that she didn't have any friends at Oxbow besides me. On a Friday night, a group went out bowling and she felt left out with me asleep she didn't want to invite herself. Oxbow was supposed to be her fresh start and things were going in the same direction that they went at home.

I didn't know if she was alive or dead, at home or at the hospital. I didn't sleep that night and it blew my mind that she could have felt like that. I was so confused as to why she would not want to live.

I was choking on air, suffocating from the idea that it could all be over so quickly. Everything can end in an instant if that's what you choose, or it can keep going on and on until finally someone else decides to put you out of your misery. I was alone physically. Mentally. I was being punished for something that I didn't do, I didn't understand why it was so bad for me too. I became collateral damage to an event that brutally ripped apart her life from mine, leaving us both with a gaping hole.

The weeks that followed my return to Oxbow, I had ever felt so miserably lonely. I was completely alone, and there was no way to change it. I only left my room to go to class or to a meal (if I went to one it was rare) and other than that, I stayed by myself. I was drowning by choking on my own emotions, and instead of making my way to the surface I just kept going deeper and deeper. I was haunted by nightmares each night. When I woke up in the morning I wanted nothing more than to return to the nightmares that inhibited my brain each night, because I thought nothing could worse than how I was living.

I have never felt so alone, so distant from everyone that I care about. I have nightmares about leaving people and being left behind. They became so scary that I found it hard to go to sleep when night came. I start to get anxious and then I get upset and end up talking to my mom for a few hours and, finally, when I am too tired to keep my eyes open, I fall into the arms of my nightmares until I wake up in the morning, not knowing why I'm not at home, or why Emma isn't here with me and our room looks so different. Then, I remember everything that happened and desperately try to crawl back into the arms of my nightmares because nothing has ever been as bad as how I live now on a day-to-day basis.

My past is holding on to me so tight that I can't move forward into my future.

Loneliness is a chronic experience for more than 20% of the United States population. Loneliness is losing a meaningful relationship which creates a feeling of hostility, it impairs self regulation, promotes and induces an anxious search for social information and human

connection. Loneliness has such a negative effect on the body that it can cause detrimental health outcomes. What is the initial cause of loneliness? Why does it continue even though we might be surrounded by people?

In a study done at the University of Chicago that tried to find out “how individual differences in loneliness relate to neutral responses to social and emotional stimuli” researchers discovered that loneliness is caused when there is a lack of human connection. When someone experiences social exclusion as an adolescent, the outcome can have lifelong consequences for that person. It is often expressed that “adolescence is a life period which includes major consequences in a young person’s physical, social, emotional, cognitive growth and development” (Walhovd, 2016).

The youngest years of life are so important because of how much the brain changes. The Medial Temporal Lobe is located in the inside center of the brain and works with all the different types of memory; it is similar to plastic in the way that it is so easily molded and flexible. It’s the most susceptible part of the brain to change throughout a lifespan. During childhood, the variation in the brain structure continuously increases. In the second decade of life, there is slightly less change in the brain structure and function. In the third decade of life, the amount of change that happens continuously decreases at a semi-dramatic rate until the final years of life. In percentages, the brain structure starts at about .70%, and in infancy it reaches a peak of .85%. After adolescence, it falls at a constant rate until it reaches .55% at the age of 65 (Batouli et al, 2014). Although these percentages may seem small when compared to the growth rate of both the male and female brains from the brain of a newborn to the brain of an 85 year old they are actually large; the male brain having a growth rate of 9.3% and the female brain having a growth rate of 8.1% (Chudler, 2016) (most of these changes are happening in the MTL, and although it is possible for them to occur in some outer sub portions of the brain it is highly unlikely (Batouli et al, 2014).

When Cacioppo, one of the nation’s leading scholars in the psychology of loneliness, made his claim that “loneliness undermines health and can be as detrimental as smoking” (Cacioppo, 2009). He knew that both the Ventral Striatum (VS) the part of the brain that deals with rewards and the Temporoparietal Junction (TJ) the area of the brain that controls empathy are both apart of the Medial Temporal Lobe (MTL). The MTL also includes the hippocampus, and the entorhinal cortex, which both deal with learning from episodic memory. The MTL is the section of the brain that deals with memories, experiences, and empathy.

The scary part about someone who is lonely, or has been lonely for a long period of time (months, or years) is that the parts of the brain in the MTL start to lose the blood flow to the parts that are not being used as much (Walhovd,2016). When someone is lonely, they aren't responding to social rewards, which decreases the amount of blood flow to the Ventral Striatum (involved with reward, expected reward, and overall motivational reward). The brain's behavioral response to loneliness is because there is a fundamental sense of reward that comes with having social interaction and connections with other humans. This response causes the brain to think that it's in pain or being injured.

In the brain of a lonely individual other people may seem threatening. This is because lonely brains see stressors as threats instead of challenges and will go on to handle said stressors in a way that is passive and isolates itself from seeking out the help and support of other people. Based on past interactions when the person did not feel social rewards from these people, and the blood flow to the Ventral Striatum lessens causing the brain to feel as though it was harmed. Although loneliness may be caused by a lack of human connection at first, loneliness continues

to happen because of the way that the brain now sees the people you are surrounded by. The brain is doing this because when someone is lonely, they aren't responding to social rewards, which decreases the amount of blood flow to the VS (the Ventral Striatum involved with reward, expected reward, and overall motivational reward. Its behavioral response to loneliness is because there is a fundamental sense of reward that comes with having social interaction and connections with other humans.) In order for the brain to protect itself, it starts to make changes to the memories that one has.

In the early 90's there was an epidemic of people who went to see their therapist for one thing and came out believing that they had gone through something, such as childhood abuse, from a close relative or parent. Even though the event never happened, due to psychotherapy people started to receive false memories (University of Chicago, 2009). This can happen because the brain is capable of manipulating a situation to be able to form new connections and neurons in order to heal after an injury or to adjust to a change in the environment.

According to HOPES (Huntington's Outreach Project For Education At Stanford) Article titled "Neurobiology," which focuses on Neuroplasticity, the brain is constantly reorganizing itself and creating new connections and neurons, switching the paths that they would usually take, reusing old empty paths for new connections or neurons in order to carry out functions that were lost to degeneration. "One of the reasons that this happens is a result of learning, experience, and memory function...Conditions in our environment, such as social interactions, challenging experiences, and even fresh air can play a role in brain cell survival and the formation of connections. It can also change and rearrange in response to injury or disease" (HOPES, 2014).

The body will do incredible things to protect and preserve itself. The human brain has adapted in order to protect itself; the brain will alter past memories of events and social interactions. Making them seem better or worse depending on how the Dorsal Anterior Cingulate, the Ventral Striatum, and the Temporoparietal junction react to the situation/ how much blood the areas receive. This is why lonely people often feel that they are unsafe or view others as a threat, because the brain has changed their past experiences into something negative.

In an experience sampling study the results showed that "lonely individuals, and non lonely individuals did not differ in the frequency of social contacts or in the profile of activities in which they were engaged." The difference between the two individuals is that the non lonely individual receives more pleasure from social interactions and encounters than the individual that is lonely (Cacioppo, 2009).

Once an individual becomes lonely, there are few things that they can do to rid themselves of the burden this feeling gives them. The brain, after a certain point, starts to try and protect itself from other people from the fear that it will have another bad reaction, which can feel the same way to the brain as if the body has been physically harmed (Cacioppo, 2009). Once the brain takes over, it becomes extremely hard to fight it, especially if you have been lonely for a long period of time in the earlier years of life while the brain is still developing.

Being lonely is similar to being shy. It feels as if it's extremely hard to talk and associate with other people. Lonely people and shy people often fall into the category of "introverts." 1920s psychologist, Carl Jung, created the words "introvert" and "extrovert" to describe two very different personality traits. What he proposed is that the way you regain energy, Jung said that extroverts need to be social to regenerate energy and introverts need to be left in solitude to gain theirs back. He also said that these people often feel anxious in the others' environment.

This study has since been backed up by people like Michael Cohen in 2005 when he found that extroverts are more physiologically aroused by the extra release of dopamine. However, before this study came out in 1999, it was discovered that it also has to do with the blood-flow to different parts of the brain; introverts have more blood-flow to the frontal lobes of the brain where the primary responsibility is to executive function, personality, purposeful behavior, and decision making. Some of the other areas that receive extra blood-flow were those that dealt with making plans, solving problems, and recalling events. Extroverts were shown to have more blood-flow to areas in the brain like those that control sensory data, like rewards.

Although the places that the impact from loss of blood are in two different parts of the brain, the solution to both of them is the same, locating the cause and trying to work from that point forward. In my case of loneliness, I was collateral damage to an event that spiraled out of control. I could have prevented it by, removing myself from the situation, or trying to move forward.

However, I did neither of these things. I left it up to others to create my happiness for me because I could see no way out of the situation that I was placed in. Although the causes and the severity of loneliness vary from person to person, the main idea is essentially the same--a void has been left that seems impossible to fill.

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