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Cover image from Jackie Warren's
Composition IV

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Dear readers,

LOGOS: A Journal of Undergraduate Research is dedicated to the publication of scholarship and artistry by Missouri State University (MSU) undergraduate students, including undergraduate students coauthoring with faculty. It is open to submissions from all undergraduate students at the university and conforms to the highest standards of scholastic integrity in a blind, peer-review process conducted by distinguished faculty and students.

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COLLEGE OF ARTS AND LETTERS

INVISIBILITY CLOAK

Deziree Williams

Abstract

The presence of racism, abandonment, and abuse created a cloak of invisibility that I was forced to wear at a young age. It has both weighed on me like a sack of bricks and been a source of safety. This photography project was a way for me to better understand this duality of weight and safety. I am learning to be a confident woman who lets others see her and is okay with those who do not want to.

I came up with the title, “Invisibility Cloak,” after realizing that I have tried to protect myself by hiding to avoid being seen and inevitably hurt throughout my life. However, at times the cloak was forced upon me by others who refused to see me for who I am. I believe this is when I started to voluntarily wear it. Dealing with other people’s prejudices, being abandoned, and being abused communicated to me that I would be hurt by others because of who I am. Despite these experiences, I still loved others, trusted people, and wanted to be seen. This is where the duality comes in. I have been hurt by and lost trust in people; yet, I still choose to let people see me. However, what they see is not always the full truth. I hide certain aspects for fear of being judged. It is an ongoing battle, but I take it one day at a time.

I completed this project using a digital camera, which gave me the freedom to take as many pictures as I wanted. I got to play with slow shutter speeds, make different facial expressions, and alter my movements in the pieces. This project helped me grow as a person and learn more about myself. I have learned it is not easy to share yourself with others, but it is how you grow.

I dedicate this project to my mother, who we lost too soon.



Disappoint. Photograph by Deziree Williams.



Chaos. Photograph by Deziree Williams.



Lost. Photograph by Deziree Williams.



Hesitation. Photograph by Deziree Williams.



Strength. Photograph by Deziree Williams.



Subtly. Photograph by Deziree Williams.

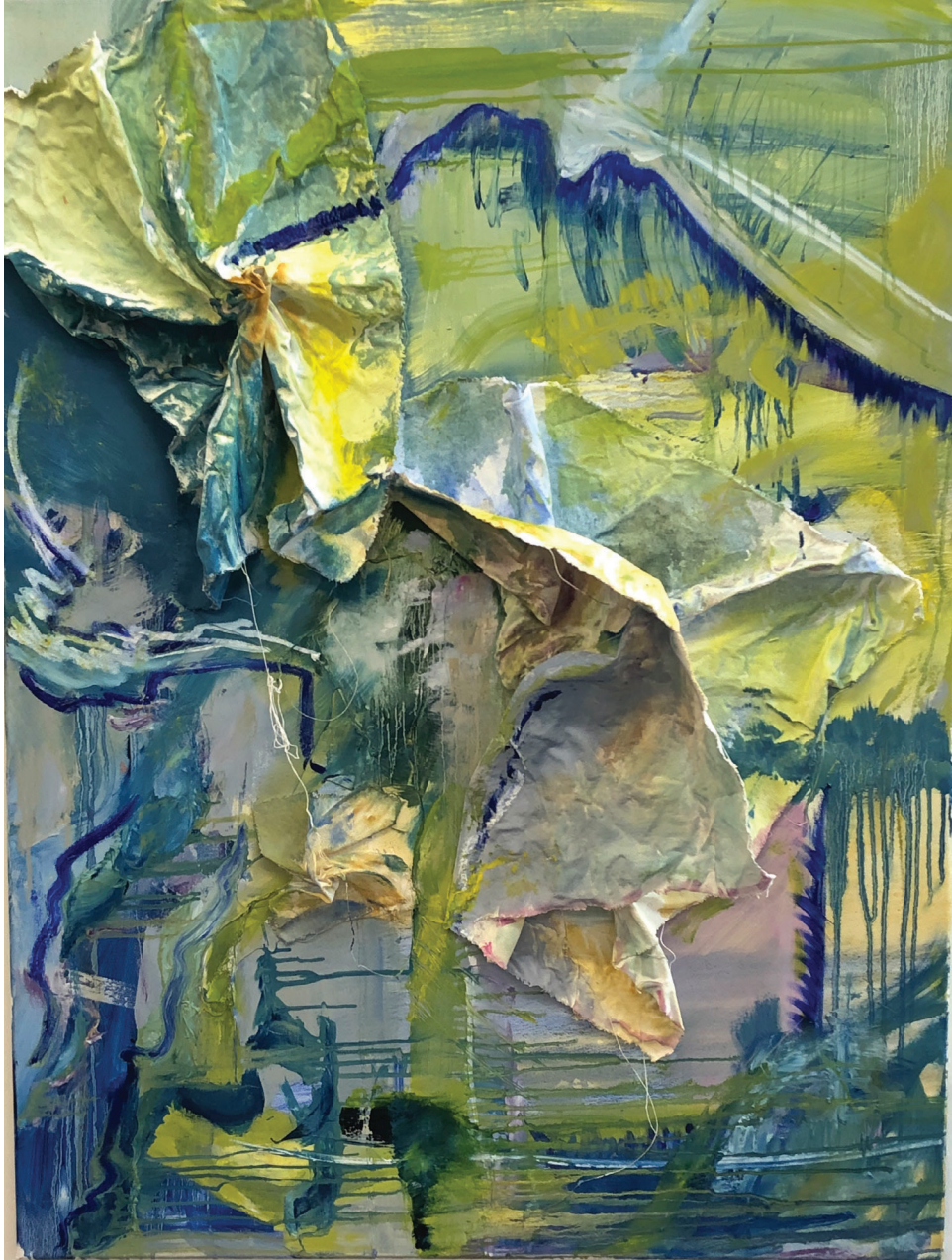
COMPOSITION IV

Jacqueline Warren

Abstract

What do you think this piece is, or what do you think it is about? You are neither correct nor incorrect in your answer. The mind demands to know what it is seeing, to find something recognizable or familiar. With abstract expressionism, you are instead asked to feel an emotion or a memory.

While viewing this landscape, made of color, line, and forms, think about what you can take with you.



Composition IV. Artwork by Jacqueline Warren.

SELF-PORTRAIT OF A COSTUME AND HIDING

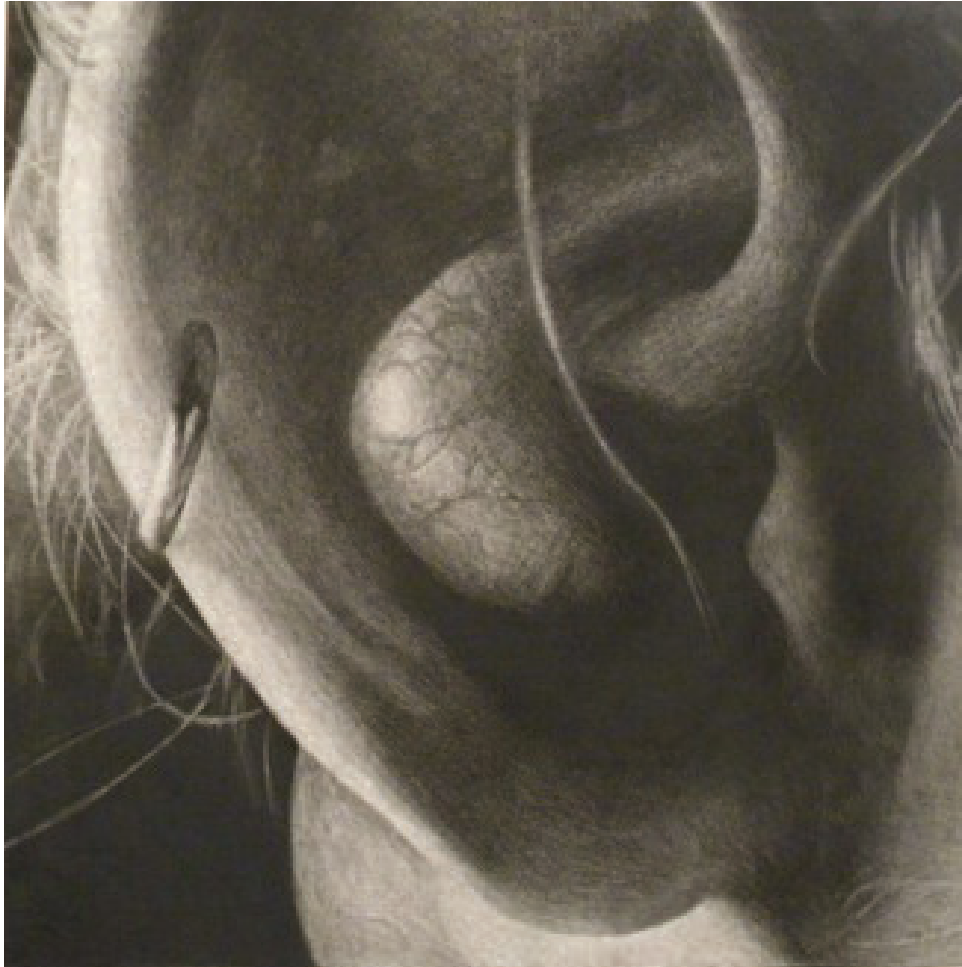
Shannon Wick

Abstract

With selfies fully integrated into our culture, it might seem that drawing a self-portrait would be easy. However, I found this challenge difficult in my drawing classes. For our first assignment, simply drawing ourselves with interesting lighting, I chose to focus on my ear and the position of the light behind it. This is my piece *Hiding*, completed with charcoal on 20" × 20" drawing paper.

One of my final drawing projects was *Self-Portrait of a Costume*. The challenge was similar to the assignment that led to *Hiding*, but now I could explore the possibilities of altering the source photograph. I combined three different selfies and used three different mediums. I completed it on 30" × 40" drawing paper, using charcoal, soft pastels, and watercolor on watercolor paper, which I then cut out and glued onto the final project. The main photograph I used comes from a staged photography project where I styled myself in 1950s-era makeup, hair, and clothing.

In both pieces, I avoid drawing my entire face and focus instead on a refraction of myself. By focusing on smaller sections of pictures, I was able to offer small parts of myself freely. Drawing other people or scenes is a more objective approach, but when I had to draw myself, it became more about bending the rules. It is incredibly easy to slip into negative habits—never feeling fully satisfied with photographs of ourselves, always finding a way to make our own faces look foreign. These two pieces—and my abject avoidance—made me realize I was thinking the same way. The process helped me see the planes and angles of my own face piecemeal. But, my face is my face, and choosing to share that, even in these distortions, helped me step away from my cyclical thoughts and see things more objectively.



Hiding. Artwork by Shannon Wick.



Self-Portrait of a Costume. Artwork by Shannon Wick.

HOSPITAL FOOD

Taylor Paris

Abstract

This memoir follows me as I visit my father, a patient at a psychiatric center in St. Louis, Missouri. Instead of watching him heal, the reader sees the fallout of a suicide attempt and how it affects my father, myself, and our relationship. Unlike most stories, it is the downfall that drives the narrative, pushing me to process my thoughts about what was happening in front of me at the time. It is also a look into a different perspective regarding recovery: what does a depressed, suicidal addict look like from the point of view of his ten-year-old daughter? The memoir focuses on the food given to the patients at the mental health facility and how it may have affected their recovery. Hospital food, especially what is offered in psychiatric wards, is typically dull and unappetizing, which reflects both the setting and the conflict of the piece.

Before my father left, he taught me how to cook spaghetti. I sat on a stool in the middle of the kitchen while he buzzed around the room, quickly explaining why he used certain ingredients and how to prepare them properly. He'd told me these things before, but I never seemed to remember them well enough to help him the next time. That afternoon, as he prepared our meal, I was more focused on getting to spend time with him than listening. For weeks, he'd been sleeping through dinner, or not bothering to come eat with us. That day, however, he was in good spirits. He wanted to connect with me, show me how to create something he was proud of so I would be able to do it in the future. I never thought it was important to learn because I assumed he'd always be around to do it.



The smell of the hospital was unfamiliar and unwelcoming. The sterile floors and endless hallways made me uneasy, but the cafeteria was the worst. The smell of cleaning chemicals mixed with the sickening aroma of meat that had started to rot and cheeses that had been sitting out too long. My mother wanted to protect me from the reality of his temporary bedroom, an almost empty box, save for two cots and a toilet he shared with a man who heard voices and

screamed in his sleep. We would wait until lunchtime to visit him, hoping he had managed to perk up after he got something to eat.

He was never picky. I could remember him trying to convince me to eat different kinds of food when I was a child. He'd hide different ingredients in my meals, hoping I wouldn't notice and that it would trick me into liking it. He always ate foods that were so spicy his forehead would start to sweat and his face would turn red. I'd poke fun at him, laughing when he told me his food wasn't hot at all. At the hospital, he wouldn't eat anything.

His eyes glazed over as he stared at his meal. Thin slices of meat were paired with overcooked vegetables and thick, bland potatoes. The same meal with different variations was brought to him every day in the hope he would get all the food groups he needed to become healthy again. He never seemed to notice that there was food in front of him; instead, he stared blankly ahead, watching the tray as though it would move suddenly, taking his meal with it. After the third visit, the nurses stopped asking him to eat. I could see his face beginning to hollow out and his body beginning to grow weak. It seemed he was deteriorating in front of me, like a corpse already starting to decay.

I talked to him as much as I could, asking him about his roommate and if they had anything in common. I brought him my *Magic Treehouse* books, telling him they made me feel better when I was ill and that I hoped they did the same for him. I got him to crack a smile when I mistook the tapioca pudding for vanilla and spat the slime back into the cup. Before I said goodbye, I made sure we did our secret handshake—a simple movement of pressing the pads of our thumbs together paired with small, understanding smiles. Every time I visited, it was harder and harder to get him to find the strength to lift his hand to meet mine. Sometimes, when I held my thumb out to him, it took him a moment to understand what I was trying to do. By my fifth visit, he had forgotten it completely. On our way home, I asked my mother if he would forget about me too. She did not respond.

After his third week, I told my mother I did not want to visit him anymore. I was afraid, not just of the man I no longer recognized, but of the people he had been living with for the past month. I could see the look in their eyes, as though they no longer knew they were existing in the world. Food and juice fell out of their mouths as they drooled, slumped over and pale, sitting alone at a long white table. Their hands shook as they shoveled peas and soup into their mouths, trying desperately to keep themselves alive while the drugs destroyed their minds.

In the first few days I visited him, I retained a firm belief that the Metropolitan St. Louis Psychiatric Center was not the place my father belonged. During

my childhood, he was so different from the man I was seeing in front of me. I could remember the way he used to light up a room and how everyone thought of him so fondly. That man was gone—replaced by a dull shell of what I knew. Part of me still hoped his old self would return or would rid itself of whatever sickness had struck him around the time my mother asked him to leave. But as I watched the joy and recognition fade from his eyes, I could see that my hope was worthless. Every lunch with him seemed to last for years, and all I could do was watch as he slipped further and further away from me.

For his final lunch before he was released, they served him spaghetti. At home, it was his favorite meal to cook and my favorite to eat—it was highly requested for birthdays, get-togethers, and, once, even Christmas dinner. Nothing on his plate resembled the food I cherished at home. The sauce was full of unnecessary liquid, moving across his plate like water and splattering his shirt when the orderly put his tray down too hard. The noodles looked like tiny worms, ready to chew up the grime on his skin and spit it out. He wouldn't even look at it, or anything, really. Again, he stared at the table or the floor and did not respond when he was spoken to. His ribs, jutting out like roots over thin soil, could be seen through his hospital gown. His face was hollow, unrecognizable to anyone who had not seen him for the past few weeks. Defeated, I rose to visit the waiting room, where a lone vending machine sat humming in the corner, watching as it was used and its innards were discarded.

I was shocked when I saw his eyes follow my movements. I was not used to him being able to focus on anything but the table in front of him. I still managed to give him a smile before quietly walking out of the room. I navigated the hallway expertly, knowing the correct places to turn and which doors to open like it was my own home. The room was empty of human life when I walked in, save for the half-asleep nurse at the welcome desk. I reached the machine and noticed there was a single bag of Skittles, my father's favorite candy, left. I looked down at my hand, noticing that I only had enough cash for a single item from the machine.

The bag was not hard to sneak back into the lunch room. Technically, patients weren't supposed to eat candy, especially if they hadn't been eating their meals regularly. The rule seemed irrelevant, considering this was a place for people whose brains were deprived of feeling joy. I slipped him the pack of Skittles, even though there was no place for him to hide it under his hospital gown. For a moment, he stared at it with the lifeless, blank eyes that I had grown accustomed to. The candy seemed to have no impact on him, but he still took it cautiously from my hands and pulled it close to his body, like a treasure he'd been desperately searching for.

DISCREDITING FEMININITY THROUGH PATRIARCHAL CONTROL: CATHERINE MORLAND'S IDENTITY

Katie Jones

Abstract

Because Jane Austen produced valuable literary works during the British Romantic era of the early 1800s, this essay examines *Northanger Abbey* in the context of Romanticism and presents a feminist literary criticism. Austen's character Catherine Morland exemplifies characteristics of freedom from artificiality or confinement and emphasizes human emotions that connect to values. These ideal Romantic characteristics are paradoxically devalued because they are feminized. The essay explores how characters in the novel and people in modern and contemporary society discredit Catherine's feminine identity despite their expectations of her to retain such an identity, reflecting the oppression of women's femininity. In *Northanger Abbey*, the devaluation of Catherine and her characteristics illustrates the results of patriarchal control over feminine identity, demonstrating that society continuously discredits feminine interests while simultaneously confining women to those interests. This piece argues that *Northanger Abbey* not only comments on Catherine's identity and oppression, but also represents society's persistent view of femininity.

During the British Romantic era in the early 1800s, Romantic writers often claimed specific and powerful characteristics to define their writing and create a revolutionary genre. Some of the characteristics that made Romanticism innovative include freedom from artificiality or confinement and emphasis on human emotions that connect to values. William Wordsworth famously summarizes these important characteristics, saying Romantic poetry is the "spontaneous overflow of powerful feelings" (3). Romantic literature is composed largely of male-authored texts, and some works by female authors are debated or disregarded. However, Jane Austen's novel, *Northanger Abbey*, qualifies as a Romantic piece partly due to the character Catherine Morland. The novel follows Catherine as she vacations at various locations, experiencing difficulties that arise due to her curious and sweet nature. She exercises freedom from the captivity of cultural norms, and she expresses intense emotions that re-

sult from what she treasures. Because expression of extreme emotion is often feminine-identified, the importance of these characteristics in Romanticism reveals inconsistencies in the logic of the patriarchal control present in the novel, which devalues these feminine-identified characteristics when women, specifically Catherine, express them. Just as some people discredit Austen despite her literary focus on characteristics male Romanticists cherish, people discredit Catherine for femininity despite their expectation of her to retain such femininity, reflecting oppression of the feminine among women. In *Northanger Abbey*, the devaluation of Catherine and her characteristics exemplifies the results of patriarchal control of feminine identity, demonstrating that society continuously discredits feminine interests while simultaneously confining women to those interests.

Over the course of the novel, Austen accomplishes three things that allow *Northanger Abbey* to offer a commentary on femininity. First, she indicates that society perpetually and deliberately trivializes the interests of women, and it also maintains negative views of femininity. Next, she shows that despite society's distaste for femininity, it offers no alternatives to feminine interests and expression because it relies on those interests to maintain patriarchal control over women and the gendered power imbalance confining women to a lower societal position. Lastly, she creates Catherine to be an unlikely heroine embracing femininity through freedom and emotion but still suffering from the results of power imbalance and masculine control. The novel conveys the contradictory truth about societal viewpoints of femininity. To offer one of these societal viewpoints, Stevan Hobfoll discusses in his book, *Stress, Social Support, and Women*, the nature of such views, saying, "So long as economic and political resources rest primarily in the hands of men, male activities will be more highly valued than female activities. Thus, the deeply-rooted bases of the devaluation of femininity may pose ... barriers" (83). Hobfoll introduces readers to the idea that the discrediting of femininity is common, and he attributes this invalidation of activities women enjoy to the economic and political power of men, which explains the power imbalances found within *Northanger Abbey*. This devaluation of femininity is detrimental for Catherine and for all women as cultural, gendered norms often force them to remain feminine while denying them the same respect men receive.

Primarily, the novel exemplifies the invalidation of feminine interests simply because they are associated with femininity. Women in the novel are not able to enjoy their activities because men discredit those interests because they are gendered as feminine, even though they are not harmful or inherently bad. For example, a prominent purpose of *Northanger Abbey* is to validate the fe-

male-identified genre of novels, which reflects a major example of society discrediting feminine interests. Women were the primary readers of novels at the time the text was written, and society considered novels deplorable. Austen's voice appears in the text to stress the extent of society's distaste for novels, saying people generally undermined the ability and value of novelists, who were primarily female (14). Several more examples throughout the text demonstrate devaluation of femininity, but one such example occurs in the context of satire. When Henry, Catherine's love interest, discovers that Catherine does not keep a journal, he acts incredibly shocked and expresses false concern (using extremely frivolous illustrations) that Catherine will not remember details without a journal (Austen 9–10). At the end of his comedic monologue, he exclaims, "I am not so ignorant of young ladies' ways as you wish to believe me; it is this delightful habit of journaling which largely contributes to form the easy style of writing for which ladies are so generally celebrated" (Austen 10). Although the beginning of his speech appears to ridicule those who believe women are foolishly obsessed with documenting every minor detail of their lives, his last sentence seems to make a more serious statement about the interests of women. Even within satire, by stating that women are only celebrated for an "easy style of writing," Henry devalues feminine authorship and asserts his masculine power to determine what writing is valuable and simultaneously implies that such unvalued writing is still necessary. By devaluing female authors and then implying this necessity, he not only invalidates feminine interests but also offers no alternative to those interests because they are needed to maintain a power imbalance between men and women, as masculine writing must be better than feminine writing to keep women from becoming equally valued writers and readers. This situation confines women to certain interests. Henry exemplifies the power imbalance further when he even invalidates women's fondness of flowers. When speaking to Catherine, he says, "Besides, a taste for flowers is always desirable in your sex, as a means of getting you out of doors, and tempting you to more frequent exercise than you would otherwise take" (Austen 75). By assuming women must have a more substantial reason for liking flowers than just enjoying their colors or smells for such an interest to be valid, Henry asserts his power over feminine interests again, insisting they must involve whatever he defines as valuable. He offers examples of interests he deems specific to women, and therefore feminine, showing the extensive genderedness of even simple joys. By asserting his patriarchal power, he also discredits women's interest in flowers by policing their reasoning for having such an interest. Henry mirrors society's view of the feminine, believing women are silly, thereby assigning little worth to what women enjoy. Though the interests

of Catherine and other women are not essentially worthless, society's view of femininity creates several instances in which men discredit feminine interests simply because women enjoy them.

Other examples of discrediting femininity exist in Austen's writing, despite the book's focus on validating novels. Catherine's identity as a heroine is relevant to the nature of femininity. In Joanne Cordón's article, "Speaking Up for Catherine Morland," she discusses Austen's portrayal of Catherine as a heroine, saying that Catherine is "unlike other little girls in her recreational pursuits" because she has "no aversion to exercise or dirt" (44). Cordón uses this portrayal as an example of how Catherine bravely defies feminine norms, but by insisting this lack of femininity is what makes Catherine a hero, Cordón is accepting male control over deciding what is valuable (44). By stating that Catherine is better (a heroine) because she is different from other girls with stereotypically feminine interests, both Austen and Cordón perpetuate patriarchal control. Implying that "feminine" inclinations, such as disliking exercise and dirt, are a hindrance to one's character demonstrates the effects of men perceiving femininity as negative. Furthermore, such an implication legitimizes the power of patriarchal control over what women enjoy if it is, by necessity, an act of defiance for a woman to enjoy the "non-feminine." Additionally, Austen, whether jokingly or not, devalues femininity by shaming women for being interested in looking nice, which is really a genderless human desire that is often only attributed to women. Austen writes, "It would be mortifying to the feelings of many ladies, could they be made to understand how little the heart of man is affected by what is costly or new in their attire" (31). By claiming that the feminine interests of women who love to wear nice clothing are unimportant to men, Austen reinforces the idea that women must only participate in their interests for men. Even if she is parodying those who assume women become brokenhearted upon discovering that men do not like their attire, she still allows men to assume power over women by discrediting feminine interests. Austen inserts her voice throughout the text in humorous ways like this example, which shows that even she, whose novel focuses partly on mocking the patriarchy, has internalized some beliefs that discredit femininity. The novel consistently demonstrates examples of invalidation of feminine interests, portraying the larger societal view that femininity is negative.

While Catherine does display genuine freedom and emotions, as she is unafraid to passionately enjoy what she enjoys, she is socially disadvantaged due to these expressions. Because of masculine attempts to control her expressions and insistence that women need such control, Catherine's social disadvantages exemplify the effects of patriarchal oppression. The oppression punishes her

for feminine sentiment while simultaneously relying on her maintenance of feminine expression. One instance of this feminized expression of passion and masculine control over such an emotion occurs as Catherine converses with Henry, admits her ignorance of drawing, and expresses her desire to learn about it (Austen 48). During this interaction, Austen inserts an example of the necessity of masculine control despite Catherine's passion for learning, saying, "[I]mbecility in females is a great enhancement of their personal charms," because, "there is a portion of [men] too reasonable and too well informed themselves to desire anything more in woman than ignorance" (48). In this example, Austen is not participating in the devaluation of the feminine but is rather acknowledging that devaluation is necessary for maintaining a power imbalance. She demonstrates the idea that even though Catherine is socially disadvantaged in this interaction due to her lack of knowledge about art and inability to speak confidently, Henry relies on her ignorance to maintain his patriarchal power. Additionally, as Jodi Wyatt says in her article, "Female Quixotism Refashioned," Catherine's lack of mentors creates a social disadvantage for her that forces her to rely on feminine "quixotism as the only means by which she comes to know and understand her social world," which involves emotionally-dominated, naïve enjoyment of feminized interests (268). Because Catherine does not have true female mentors and men rely on her ignorance, she experiences the social effects of patriarchal control over her femininity in such a way that she must rely on her feminine identity to live despite its denunciation as undesirable. Men's desire for ignorance in women demonstrates men's patriarchal control over female expression, which leads to social disadvantages for women, exemplified in Catherine.

Although Catherine enjoys hobbies that are culturally considered feminine, she endures and internalizes shame for those hobbies whenever she expresses passion and nonconformity. She does not engage in her interests because she is unapologetic about her femininity but because she has no alternatives. Catherine does indeed express her enjoyment of novels, but people disrespect her for that enjoyment. However, her social disadvantages leave her and many other women without alternatives to their societally disrespected feminine interests. One of these social disadvantages is Catherine's linguistic ability. Even the language Catherine uses in the novel appears less valuable because it is less sophisticated and therefore feminine; it causes her distress because she does not understand others' use of language. According to Córdón, "Compared to the rhetorical skill of Henry Tilney, Catherine's speech may seem less eloquent. Of course, Catherine's manner of expression is utterly different from his, but less verbally sophisticated does not always mean inferior" (49). While Córdón

admits less sophisticated speech is not always inferior, she also maintains the idea that Catherine has social disadvantages due to her manner of expression and has little option to improve her speech, because she does not have the opportunity to become educated in the same ways men do. These disadvantages occur, because as men in the novel discredit femininity, even the way women speak, they realize doing so creates the power imbalance necessary for their patriarchal control. As a result of this knowledge, they confine women to feminine interests they consider inferior by not offering them opportunities for equal education or by insisting feminine roles are necessary for the functioning of society. Confining women to certain “lesser” affairs, like less sophisticated language, greatly affects Catherine, especially as she experiences social disadvantages brought about by men controlling women’s femininity and speech.

Further, Catherine is still a victim of patriarchal control despite actually enjoying feminine interests (rather than merely being unable to escape them), and Austen demonstrates this idea through Catherine’s interactions with men in the novel. As she enjoys stereotypically feminine things, men in the novel not only criticize the value of those things but also usurp power over them in a way that discourages her from enjoying them. Men further the power imbalance by inserting themselves into the same femininity they hate. Henry, despite his likability, is guilty of such masculine control of women’s affairs, and he actively demonstrates his guilt several times throughout the novel. One display occurs upon his and Catherine’s first meeting. He comments on the quality of women’s muslins (items of feminine dress), insists that he understands them “[p]articularly well” and is “allowed to be an excellent judge” (Austen 10). This display of asserting his authority in such matters as women’s dress, which do not concern him, encourages patriarchal oppression. Further discussing the patriarchal control in this encounter, in her article, “‘True Indian Muslin’ and the Politics of Consumption in Jane Austen’s *Northanger Abbey*,” Lauren Miskin explains important points concerning Henry’s intentions. Miskin states:

Through his self-appointed position as an ‘excellent judge’ of the market, Henry controls both female commodity consumption and virtue ... Henry converts his knowledge of feminine fashion into patriarchal power, construing his regulation of women’s social and sexual behavior as benevolent and necessary. (Miskin 6–7)

She goes on to say that Henry’s interest in muslins shows his “political allegiance to larger structures of imperial and patriarchal oppression” and his belief that women “still demand the controlling influence of a rational male authority

to supplement their fundamental lack of discernment” (Miskin 6, 17). According to Miskin, Henry’s assertion of power in this conversation creates an interesting form of control over Catherine and other women because he disguises his power as helpfulness for those who cannot decide what is valuable on their own. This disguise makes his patriarchal control more dangerous because it does not allow women to consider the idea that he should not regulate their attire. By claiming to be an expert on feminine clothing, which men have historically devalued for its ridiculousness (as demonstrated by Austen’s comment on women’s dress), Henry claims power over women’s rights to choose and enjoy their clothes. Henry’s self-determined authority to choose what femininity is acceptable because women are incapable of choosing for themselves asserts patriarchal control over Catherine’s feminine identity.

Although some may view Henry as one of the only male characters in the novel who does not actively participate in the oppression of women, he evidently demonstrates his patriarchal power in several instances throughout the text. Henry does contribute to the effects of patriarchal control on Catherine’s feminine identity. Those who defend Henry might agree with Stephanie Eddleman, who depicts Henry as a hero in her article, “Henry Tilney: Austen’s Feminized Hero?” Eddleman says Henry “encourages [Catherine’s] interest in the novels” and “stokes her curiosity, fuels her fear, validates her interest” (73). However, contrary to Eddleman’s claims, Henry does not encourage Catherine’s novel-reading more than he mocks her for it, actually invalidating her interests. He teases her with a made-up, elaborate “Gothic” story, even though he realizes Catherine is fully invested in the story and gullible (Austen 68–69). By teasing her with a ridiculous mockery of her interests, he asserts his patriarchal control over a feminine hobby she enjoys. Henry, too, contributes to masculine power over Catherine that affects her feminine identity.

Most importantly, evidence of Catherine exemplifying the results of men controlling feminine identity includes her internal thoughts. Because patriarchal oppression affects her so strongly, she internalizes men’s negativity toward the feminine. This internalization is perhaps the most toxic result of male control because it erases her (and women’s) ability to determine what she believes is valuable. Austen shows that women internalize the devaluation of femininity when she describes the typical thoughts of women who enjoy reading novels. She describes a situation in which a woman reading a novel may be asked what book she is reading and become extremely embarrassed in her reply, going on to insist, “[H]ad the same young lady been engaged with a volume of the Spectator, instead of [a novel], how proudly would she have produced the book, and told its name” (Austen 14). By stating women are

generally ashamed to tell men they are reading novels they enjoy but are not ashamed to be reading works men find acceptable, Austen implies women have internalized masculine devaluation of feminine interests. Catherine experiences this internalization when she speaks with John Thorpe. She expresses her valued emotion and freedom from confinement by being enthusiastic about the novel she is reading, but when John discredits novels as “full of nonsense,” Catherine is “humbled and ashamed” (Austen 19). Because she does not maintain her excitement about novels and instead feels embarrassed after hearing men find them worthless, she is internalizing their control and negative views of femininity. Through oppressing women and discrediting feminine interests, men cause Catherine and other women to internalize misogyny, leading them to exemplify the results of patriarchal control.

To summarize a paramount storyline, the men in the novel make Catherine feel that she is no longer able to enjoy her harmless hobby of reading Gothic novels because they believe such a hobby is feminine, thus silly. Even though men deem Catherine’s feminine hobby of novel reading worthless, they want her to maintain her feminine ignorance to enforce their superiority, creating an inescapable cycle. This major narrative, in addition to many other important scenarios, exemplifies patriarchal control over femininity to an extent that causes harm to Catherine’s identity and other women. *Northanger Abbey* not only comments on society’s view of novels, but it also represents a consistent pattern of society’s view of femininity.

Considering the three aspects of patriarchal oppression that *Northanger Abbey* demonstrates, which are discrediting feminine interests, confining women to those interests, and this control affecting women’s options and experiences, the novel is a persisting example of the illogical, systematic structure of patriarchy. Catherine is a victim of a pattern of disrespect for femininity, and this disrespect confines her to such femininity, creating disadvantages for her. As Catherine expresses her emotions and nonconformity (which are femininized) as the Romantics did, she is ridiculed rather than revered. Similarly, Austen’s bravery in creating Catherine expresses values and freedom that should elicit respect instead of ridicule. Though Austen likely created this work primarily as a statement about the societal discredit of reading novels, identical discredit of feminine identity is universal throughout the novel and the world. As modern evidence of the everlasting replication of a system, such as the one exemplified in *Northanger Abbey*, Nian Hu’s article summarizes the devaluation of femininity in the real world. She declares:

The problem, therefore, is not only that activities are arbitrarily ascribed 'masculine' or 'feminine,' but also that activities ascribed as 'feminine' are necessarily seen as inferior, weak, and frivolous. When we make fun of [girls] for drinking lattes and wearing leggings, we are looking down on femininity and expressions thereof. (Hu)

Hu uses current feminine interests to reflect the continued existence of the same patriarchal structure present in the novel, and she reveals that this discrediting of feminine interests dismisses the value and identity of women themselves. The devaluation of femininity prevails as men continue to use patriarchal control to maintain power imbalances, and their mockery still affects people who just want to be able to enjoy pumpkin spice lattes, makeup, or shopping, if they so choose, without being discredited for enjoying female-identified interests. Dismantling patriarchal control, similar to what is demonstrated in *Northanger Abbey*, would allow people to enjoy what has been feminized. In order to dismantle this system, which controls Catherine and modern women, cultures must first legitimize feminine interests, like novel-reading for Catherine, so those interests become valid options for anyone, regardless of gender. Without first legitimizing interests that are female-identified, it may be impossible for societal systems to stop assigning interests to genders because of the perceived inequality of feminine interests and masculine interests, therefore ensuring a gendered divide and control based on what interests are more acceptable.

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CURTAIN CALLING

Ashley Lenahan

Abstract

This flash-fiction piece, “Curtain Calling,” offers a spoken monologue as a terminally ill father conveys his last wishes to his daughter through a set of voicemails. Specifically, he asks his daughter to care for her mother once she becomes a widow, fulfill his desires for his funeral and burial, and understand his experience as a dying man. The voicemails become increasingly vulnerable, which reflects the strength of their father-daughter bond and reveals the depth of the father’s desire to escape the remaining effects of his illness.

10:12 a.m.

Lace, it’s your father. If you are there, don’t pick up. There are some things that need to be said and some arrangements to be made. Dr. Harris said today we are looking at weeks now, and—oh, kid, I know this will be hard.

Why don’t you pause here for a second? Get yourself a glass of water. Take a minute to breathe.

The truth is, things will get much harder before they get easier. What I’m asking you to do now will make your burden greater than your sisters’, but that’s what you get for being the favorite child. You regret tagging along to all those Red Sox games over the years, don’t you?

First, let’s talk about the night after. Or the night of. This night.

Whichever evening your mother will first spend alone.

After you’ve said goodnight, I want you to linger outside our bedroom door until you hear her begin to pace. These paces will come in a steady string of creaks, like the rocking of a ship as she wades herself through her deepest thoughts. She’ll continue like this for a few minutes, maybe even hours. At some point, she’ll play that Ella Fitzgerald track she loves. The name—something about Paris. The one we danced to at our wedding.

God, you should have seen her that day. An absolute dream, I—

Look, you’ll have to let the song play a while before you enter. Let the melody work its way inside of her, weeding out any resolve she would have to turn you back outside.

When you do go in, don't ask her any questions, don't even try to speak. Just take her in your arms and dance, all right? Dance with her and hold her even if she stumbles, even if she collapses into your shoulder, her movements as staggering as Aunt Marge's blind dog. Forget you are the child for this one night and maybe several nights to follow.

10:18 a.m.

Lace? The phone started beeping. I think it was going to cut me off. I'm sorry to tell you this, kid, but you're not done yet. We still have to discuss the day of the service.

Your mother is sure to stuff me into one of those suits I've hidden in the back of the closet. Make sure it's not the gray one with the pinstripes and the sleeves that suffocate my shoulders. Or the navy one—the pants shrunk the last time they were dry-cleaned.

Be sure to cut the tag out of the collar of whichever one she chooses. I don't want to risk having a permanent itch at the back of my neck in whatever life is to follow.

Can you also send the man who does the preparations off with an extra pair of socks? Make it the Red Sox pair you got me last Christmas. Was that two Christmases ago? The ones with fleece lining. This probably isn't the kind of thing that allows for cold feet, but you never know.

C'mon, kid. That was a joke. I know now's not the time, but—

Well, it's the only time I've got.

Do you need to pause again?

Don't forget, you'll also want to keep drunk Uncle Lewy away from the podium at the procession. He'll show up with a gutful and want to talk about that night in '88 with Cousin Al's Chevy and—

Well, some things are better left buried.

All right, that was the last one. I promise that was the last one.

10:22 a.m.

That beeping started again. Damn technology these days, I tell you. Add it to the list of things I'll never understand.

Do you remember the first play we ever took you and your sisters to see? The one about that frog-turned-prince, or was it a prince-turned-frog? It was a long time ago, I know, back when Lisa was first learning how to talk and Charlotte was still finding the best ways to ignore your mother and me.

I could never forget the way you cried when the curtains fell at the play's end. You told me you hated those curtains, that it wasn't fair they got to decide when the story ended.

I thought of that this morning when Dr. Harris came into the room with closed curtains, concealing himself and my test results inside. Later, too, when he returned with a tense back and sympathetic eyes, the proper form he needed to land the strike of my diagnosis like one hell of a pitcher with bad news.

Kid, I haven't hated much. I hope you know that.

But I did hate those curtains, just like you did.

I hate the moments spent waiting for someone else to tell me I've reached my final act. I hate the end of the play and the waiting.

You can understand that, can't you?

Kid, I need you to understand.

10:27 a.m.

I realized I didn't say I love you. I'm not sure I've said that since I've been on the line.

Your mother says we're all doing dinner at Aunt Marge's tomorrow night, so I'll be there.

All right, kid.

Well, I promise I'll be there.

ASSORTED FRUITS

Natalie Derks

Abstract

Fruits and vegetables are essential to how creatures, particularly humans, nourish themselves. We grow and cultivate these foods, bring them to our social gatherings, and eat them, inviting them to become a part of us. We associate them with our everyday lives. Fruits and vegetables become distorted, refracted, enlarged, or reflected when placed in water or behind glass. These characteristics convert the items into unrecognizable forms and cause the viewer to question what they see. Taking familiar things and making them abstract invites the viewer to take a closer look, reacquainting themselves with the world, the objects, and their surroundings. The arrangement of the elements within the composition emphasized my process of play in the studio. I brought a variety of fruits and vegetables into the studio without a plan of action to capture the spontaneity of the elements in the moment. I toy with the characteristics of my subjects, such as their colors and textures, to create interesting compositions that appeal to the senses, both visual and tactile.



Assorted Fruit 1. Photograph by Natalie Derks.



Assorted Fruit 2. Photograph by Natalie Derks.



Assorted Fruit 3. Photograph by Natalie Derks.



Assorted Fruit 4. Photograph by Natalie Derks.



Assorted Fruit 5. Photograph by Natalie Derks.

IN PASSING

Lindsay Recar

Abstract

I grew up down the street from a cemetery. Though I did not visit it often during that time, I remember walking through once or twice on the way to my aunt's house. Later on, there were many instances where I found myself in cemeteries. In a small town with few ways to pass the time, my friends and I would often spend afternoons amidst the headstones. Because of this, I associate cemeteries with more pleasant memories. This piece explores an appreciation of cemeteries from an aesthetic perspective, while also reflecting on what people, either intentionally or unintentionally, leave behind once they are gone.

In the shade, with our stomachs atop a lumpy blanket, we filled the air with laughter only feet away from buried bodies. My friends and I blared music from our phones while adding a crunchy layer of chips to our ham sandwiches. Aside from us, the graveyard was empty.

There were rarely visitors. It was uncommon for someone to trek in from the sidewalk to visit a grave, but when someone did, we kept our distance. Though I was unsure why, my eyes always refused to look directly at these strangers.

This graveyard was on the street corner with fences on the sides that led to the other properties. The fence was as bare bones as one can get; it was made of rough metal pipes and was the height of a low hurdle. The rural street with little traffic put the cemetery on display; it greeted you at the first intersection.

On one side of the graveyard were headstones so old they were either illegible or unnamed in the first place. Most looked like they were dipped in acid, their edges rounding out and dripping away. Some were single-laid bricks, sunken into the mud and nudged away by uncaring tree roots. The road plunged to reveal a cracked concrete barrier that held back the soil of the graveyard. The graves on that side seemed ready to slough off onto the street.

Sandwiched between the opposite edge of the cemetery and a stretch of more contemporary graves was an expanse of untouched grass. Coiled up in the corner, waiting, it whispered, *vacancy*.

Mourning didn't exist here. In my early teens, I studied the engraved words: grouped surnames, lengths between births and deaths, years between the deaths of relatives. I imagined the elderly couple, born a few years apart, buried decades from each other. The vague graves, ones with missing names and no epitaph, caught my eye the most. These set my imagination wild, while others I just found sad. Each grave received my judgment, but those graves were not built for me.



Though my graveyard visits tapered off at some point in high school, I'm still drawn to them. I spot them everywhere: through a thin veil of trees at the park, tucked along a winding back road, and across the street from Burger King. They're bizarrely nostalgic, reminding me of my childhood spent down the street from that small, eroding cemetery. As a toddler, I'd wait for my mom at the edge of our yard while she went for a walk, watching her round the corner and become obscured by rows of chipped stone. As a teen, I basked in the shade of that same cemetery's trees. Even though it had been years since those playful afternoons, the sculptures and mausoleums that peeked above black iron bars still caught my eye, and I pulled into New Mount Sinai Cemetery.

Between the thick concrete pillars marking the entrance, I drove up to a small parking lot in front of a cozy house. It reminded me of my grandparents' house, or any grandparents' house, homey and quaint. Its presence worried me while I dawdled in my parked car. Nestled in the landscape of grandiose tombs and burial structures, the house was out of place. I feared someone would peer between the curtains and find me suspicious. Unlike my childhood graveyard, there may be a judging witness to my curious eyes.

My hesitation was for naught. No one busted out of the house to stop me or emerged from the few other cars to begin an interrogation. I still walked with caution, afraid to stumble upon another living soul. It was a bright day with a slight chill to the air; leaves laid in the street, left there from the melted snow months ago. There were no walking paths, only one asphalt road that wound and looped around to connect with itself, woven through sections of the graves. I stayed on the very edge of the street and meandered up to whatever piqued my interest.

It was my first time seeing such large memorials; my attention was pulled in all directions. Marble mausoleums rose in solid blocks with Roman pillars and roofs, announcing names like RENARD, EISENSTADT, and ROSENBLATT. Doors and windows were blocked by that same dark iron. Through

the padlocks, there was glass, and through the glass was a quiet tomb. I wanted to drift through the gates, to step inside and breathe the stale air or maybe rip open the doors and bathe the freezing stone with sunlight.

One family mausoleum was a few stories high with arching tinted windows and doors leading inside. I couldn't tell if the entrance was locked or if there were people inside visiting. After traipsing through the empty graveyard, I was horrified at the thought of bursting in on a quiet, sullen moment. To me, cemeteries were always a place of unsolved stories and interesting architecture, not mourning. My fear of being seen won out against my desire for a closer look. I retreated without going in.



After years amongst graves, wandering from one to the next, I've noticed there are distinct qualities to an interesting grave. They have personality, yet an air of mystery.

Some graves are huge, above-ground slabs, which look like the sliding boxes seen in morgues that store bodies. Some have statues of women sitting with their legs curled in or leaning at a dangerous angle to sprinkle petals to the ground. Some are warm, sparkly onyx benches that state with a sweeping inscription, "Come sit and talk with me a while." Some have pictures of the deceased inlaid in the front, from senior photos to grainy, cropped snapshots. Sometimes, headstones are grouped together or are entirely connected with names left unengraved for family members yet to pass. The Chius have three buried, three blank.

Some graves create more questions than answers. A stone reading, "Loveless Fellows," sparks confusion and amusement, marking the site of Martha, Del, and Don Fellows and creating a morbid sort of pun. Did one of them choose that engraving? The meaning is lost to time; I can't figure out if this is playful or vengeful. Either way, the oddness causes me to wonder. If these grave qualities intrigue me, then what of my own resting place, far off as it hopefully will be?

Maybe my own grave will have something similar to catch the eye. I like the idea of an artistic engraving or sculpture or something that could be sat or walked upon. The problem is, these structures can break down so quickly. One resting place of a Missouri Congressman and his wife, who died in 1899 and 1902, was made of a fresh concrete block; within view is another grave, the top half-cracked and fallen over, of someone who only died in the late 1900s.

But if not burial, then what else? Cremation appeals to me since ashes can be made into glass, which can then be attached to a piece of jewelry and passed

from generation to generation. I like the idea of a great-great-great-granddaughter having my necklace hanging from her neck, keeping me close. But, with any small accessory, there's the chance of being misplaced, shoved in the back of a drawer, or forgotten on a hotel bathroom counter.

While eating breakfast, sitting across from my mom at our glossy kitchen table, she said, "They have this thing where you can turn someone's ashes into a paperweight."

I cocked my head to the side, mid-chew on a the bite of pancakes she'd made that morning. "Really?"

"Yeah. And I could see that as something you'd do to a pet but... I don't know." She wrinkled her nose and gave a little laugh. "Don't turn me into a paperweight."

I took another bite with a light smile, the thought of death distant. My mom shrugged and continued, "Or, well, I guess you could. I'd be dead."

I rolled my eyes and played along. With a reluctant sigh, I said, "I won't turn you into a paperweight, Mom."



To enter a graveyard as a visitor is not that different from being an observer. That is, only if the deceased has long since passed.

My great-grandparents and a few great-aunts and great-uncles were buried at St. Agnes Cemetery. The space was small and surrounded by a chain-link fence, huddled against a thick tree line. As my mom and I searched for the names of our relatives, I found the graves themselves unremarkable. They were simply markers for what lay beneath and what was left behind.

Then, I heard the stories. My mom pointed out the house just next door, abandoned and with a small backyard that sloped down into the woods. It had been a sawmill before it housed my great-grandparents and their twelve children. The building was narrow and tall, surely a squeeze for that many people. My mom remembers going there with my grandparents and their nine other kids. I can imagine a horde of grandchildren jumping around the yard, climbing over each other, and screaming at the top of their lungs. When visiting, my great-grandma still treated my grandpa as the baby of the family. It's funny to think about him, someone who'd been to war, wrapped in his mother's arms and sing-songed to like an infant in front of his children.

I felt closer to these family members after just one story than I had to any of the strangers' graves I'd seen throughout the years. But, with the random graves, I wasn't necessarily searching for a clear story. Each was beautifully

built, intricate and extravagant, but I had no connection to these people. The simple graves I had passed up and the ones of my relatives were not eye-catching, but they spark memories. Not better or worse, just different.

I don't know if I have a preference, or if I'd like something decorative for myself in passing. I don't know how my view may change or how others in my family would like to be put to rest.

All I *do* know is I'm not allowed to turn my mom into a paperweight.

END OF '89

Lindsay Marsh

Abstract

“End of '89” is a creative work that explores themes of grief and mourning. The focus is on Luis, the main character, as he struggles to cope with the death of his father. In the months after the funeral, he watches as his family changes with his father's absence. Luis faces the idea of his father being a necessary tether to hold the family together. The central element of loss and the family's reaction is explored with a sense of mournful nostalgia through sequences of memories and images. “End of '89” is a story about the change that follows death and the painful struggle it brings Luis.

The clouds had been heavy with rain all day, and when they burst, they fired every pent-up droplet hard into the Colombian earth, turning the soil to mud in minutes. There was so much moisture being held in the sky that this incessant pelting would last for hours, never lessening in force, in strength, or in the sheer number of individual raindrops that formed curtains through the dark jungle.

Luis could barely see through these curtains. He squinted from under the hood of his black raincoat, peering through the trails of water that poured off its edge like it was a canopy without a gutter. The rain dripped from his hood onto his face, his nose, and his thin, black mustache, and he sputtered and coughed. Thunder rolled. The thick, green brush that surrounded him on all sides, even coating the ground and reaching over him in wide sweeps and layers of endless branches, had become black and muddled. There was no direction. The monsoon, in its blurred fury and force, had washed away north, south, east, and west. His boots sank into the mud, squelching, pulling, and frustrating him further. The rain pounded against his ears. He coughed and tried to keep moving forward. It was New Year's Eve, an hour until 1990.

He knew this jungle—or he *had* known it, in some long-ago time. These were the trees, bushes, and rocks that had shrouded him and his cousins in the endless summers of their childhoods when they'd disappear into the jungle that made up the family's land. They'd traversed its nooks, hollows, crevices, and

corners all day. That was back before the youngest of the cousins had even been born—back when there were years of that blissful era of childhood still ahead of them all. Back when nothing was wrong, and Luis was a short, scruffy ten-year-old. Now, he was a tall, gangly figure struggling through the same jungle, holding back soaked stems and sopping wet brush with his outstretched hands. A rigid stalk of some plant slapped his leg as he pushed past it, stinging his skin through the denim of his jeans. The pain blended with the rest of the chaos, wind, and raindrops peppering his squinting eyes like little needles.

He just wanted to find it. That was all he wanted right now. He needed to step onto the porch and be immersed in those wooden walls that were painted red. The paint would be peeling, fading, maybe even invisible in this darkness, but he didn't care. He just wanted to be there.

A half-hour earlier, he'd been sitting at the corner table in his parents' kitchen with the sounds of cheering echoing from the TV in the living room. The others were standing, scattered, leaning against the cabinets or door frames, arms crossed or hands on heads; the heat of an argument hung thick in the air. There was nothing more dangerous than an argument taking place among the familiarity of family, and in that little kitchen at the end of '89, words were flying.

It was a silly quarrel—awkward in its beginning and quick in its escalation. An offhand comment from Uncle Wilmer came first: "Probably not good for David to be out on New Year's Eve, is it?"

A stillness. A pause, heavy with discomfort.

Luis leaned back in his chair, head against the backsplash and legs crossed, waiting for Aunt Isabel's retort.

And it came. "What do you mean by that?"

Uncle Wilmer scoffed, shrugged, and straightened from where he leaned against the counter. "Well, your son's had a fair share of trouble. He's young is all. Just never know what he'll get into at this time of night on a holiday!" He said, trying to give a laugh to ease the stiffening air.

Luis's mom gave a nervous laugh too, a vain effort to help.

It was too late. Isabel tossed her hand up, her red acrylic nails flashing under the kitchen light. "So, you think he's some sort of delinquent?"

Wilmer held up his hands in casual surrender. "No, no—I never said anything about him being a *delinquent*," he said. "I thought we all knew David was... Well, I don't know... susceptible to trouble. That's all."

Isabel scoffed with an open mouth. A subtle heat was growing heavier in the room, prickling everyone's skin.

"It was a meaningless comment, Isabel," said Wilmer.

“Why don’t we just let it go?” Said Luis’s mom.

“I don’t think I can,” said Isabel. She folded her arms. “I’m really surprised at you, Wilmer. I really am.”

The heat was sickeningly heavy.

Her husband, Samuel, spoke up now from his spot in the living room doorway. “And your record’s not exactly squeaky clean for you to be talking about David’s ‘trouble,’ either, Wilmer.”

Wilmer started to respond, but Luis closed his eyes and sunk into the black behind his eyelids. He could have stayed there, in the dark, in avoidance of the quarrel growing around him, but their voices seeped in: defending, accusing, arguing. He was alone at the table.

A roll of thunder, the fading smell of coffee, the arguing voices of people he loved—it all weighed down on him. It was a silly, senseless spat, but it wasn’t supposed to happen in this family, in this kitchen, or on the tile that he had helped lay with his dad. He clenched his eyes shut even harder. What would his dad say if he were here? He’d be ashamed of them all, with their bickering back and forth.

The chair beside Luis, where his dad used to sit, was vacant. Its emptiness became louder and louder with every harsh word, and the smell of coffee started to smell like his dad leaving for work in the early mornings. Thunder rolled again. They never fought when his dad was here; there was no reason for it to ever arise. Luis felt his chest tighten and tighten until it was too tight—the back door swung open, swung shut, and the bickering continued as he escaped into the backyard.

Lightning flashed through the trees around him, illuminating his face beneath the black hood. To the left? Or was the old cabin already behind him? It could be farther to the right, east of where he stood now. The rain was falling harder, and nothing made sense. For a moment, the wind carried a brief puff of the smell—he could’ve sworn—of his dad’s denim jacket. Another crack of thunder. Maybe the cabin was ahead, straight ahead, but the rain and wind clouded everything.

In the darkness, in the faint display of Luis’s mind, flared a red stoplight, blurred like a watercolor droplet on canvas. The streets of Bogotá, wet with rain and reflective like glass, were imprinted in a memory: his cousin, David, driving beside him, leather seats, the red blur now green in the windshield pooling with rain. A man jogged hurriedly in front of the car at the last minute as David started letting it roll forward. They turned, enveloped in the old, orange buildings lining the side street. The hearse was already parked alongside the sidewalk up ahead.

The rest of the memory skipped ahead in a flurry of images, moments, voices, and scents. An old Kleenex box at the end of the pew. A particularly tall orchid reaching from within the field of flowers surrounding the casket at the front. The scratch of a tweed suit jacket against his cheek as he hugged the next person in the endless line at the visitation. The smell of the church, of perfume, of old people. His dad's somber face peeking from the casket, eyes closed, and frowning. The glow of stained glass. The chords from the piano all filtered down the aisle as he passed by the field of flowers.

And there, tucked behind overhanging branches and thick clumps of deep, green brush, was the cabin. It was a silhouette—black and blended with the rest of the shadows and the rest of the jungle. Everything had grown up and around it. He stepped over mounds of bracken, and the ground splashed and squelched beneath his boots. How long had it been since he had walked on these steps? Since he had put his hand, his palm, or his fingers on the splintered railing? The creaking of the wood that he, his cousins, and his dad had crafted themselves mixed with the constant noise of the storm: the scrapes, groans, howls, and rustling of it all. In flashes of lightning, he could see the red paint. It was peeling as he had predicted, but it was red nonetheless. It was the red of his dad's truck. It was the red of his mom's dress that she wore almost every Sunday—the one his dad always loved. It was the red of the stoplight in the rain.

Under the cover of the porch, Luis could take off his hood. His dark hair was soaked at the tips and dripping from his forehead; his chest rose and fell in dramatic breaths. Another crack of thunder. He'd only been at the cabin on sunny days—days in the middle of those long breaks from school when he had nothing ahead of him, no schedule. Days when he'd sit on the steps with an orange and listen to his brother sing some incoherent song from inside. It didn't feel right in the rain, but it was close enough. It was close enough to something, to some tether to real life. He hadn't been in real life since the day of the funeral—no, since the day his dad had gone. Really, not even that. Nothing had felt real or right since the moment his dad's chest clenched in pain, in that first moment before he collapsed. Everything stopped there. That was the end of real life, and this porch was some faint artifact from that reality. It was a handprint on a mirror, fading and not anything like the hand itself but some echo of it.

The wind whistled through the leaves.

The screen door stuck to its frame; it had swelled and stretched to press against the wood and strained against Luis's tugs. He yanked hard enough, and it creaked like the rest of the cabin as it came unstuck and opened. There was one room inside—dark, musty, and thick with the smell of rain. His eyes were

so adjusted to the darkness of the jungle that he could make out almost everything in the gray light of the cabin. The sparse furniture was how he had last seen it, albeit hidden in the shadows. He knew it all, everything instantly familiar. A blanket was still folded on the end of the bed in the corner. A little desk with a roll-top lid sat under the window. That desk had been his grandmother's before it was his dad's, and then it had wound up in the cabin. He could see his brother playing with the lid when they were little, lifting it along its curved track before pulling it back down, over and over. Up and down, up and down, rattling. An empty row of coat hooks hung beside the window where his dad used to hang his light denim jacket with the cream-colored fur collar.

Every detail of the cabin looked like him. It all felt like him.

Standing in that room, Luis could see it when it was half-built. He saw it as a skeleton of pale lumber standing out starkly yellow—almost white—against the lush green of the rainforest. His dad was working in the middle of it, wearing his denim jacket, jeans, and work boots. He was short, stocky, and serious with a grim face and heavy brow. He wiped his face with an old pink cloth he kept in his back pocket and lifted his hand as Luis approached through the trimmed grass. He waved him forward and helped him up onto the floor of the cabin. He could feel his dad's hands now. He could hear his voice saying, "It'll be fun for us all to have this, won't it?" That man always had a project. Something for the family.

The memory shifted, and the walls formed around him, bright and new. For several years until it faded out of use, the cabin was many things. It was a playhouse for him and the cousins. It was the setting for the family birthday parties. It was a simple place where the whole family could congregate; that was his dad's goal. Luis could feel his dad's hand on his shoulder as they all stood in a circle, praying before lunch on a Sunday afternoon. The hand tightened. The prayer was ardent. They were together, all of them.

Even after they stopped using the cabin, every event was a family event. Every holiday, every birthday, every celebration—they got together. He saw their faces, all the members of the family, in a flurry of images blending together. Paper plates, card tables, and cars stacked in the driveway. His father's face in the middle of it all, with his cheeks being kissed by each person coming through the door.

But things had changed; Luis had felt the change when Aunt Isabel had a birthday party a few months after the funeral, and he and his mom hadn't gone. His brother stopped by for only a moment. Wilmer was busy. Even David had canceled. This meager gathering for New Year's Eve was the first time he'd seen Isabel, Samuel, and Wilmer in weeks—maybe longer. The family was

withered and faded in the months after his dad's death; they'd lost their tether, their glue, and it was only apparent after Luis's father was gone.

But the cabin during that Sunday afternoon lunch was bright, loud, and full of each of them.

The memory died, and the cabin went dark. Luis was alone with his hair still dripping and thunder rumbling low over the wind. Somehow everything felt hollow, and the coat hook was so empty. It was so, so incredibly empty.

He walked across the room and sat at the desk. The window was spattered with raindrops, and some scraps of tree leaves had blown against the glass and were stuck to it haphazardly. The brush beyond the pane whipped wildly in the wind. Closer to the corner now, Luis could see a steady drip falling from the ceiling to the dusty floor. He reached for the desk lid and fiddled with it; up, down, up, down. He remembered it was New Year's Eve. Maybe it was 1990 by now. He hadn't lived in a decade without his dad. Up, down, up, down. He lifted the lid again and looked at the desktop. A notebook sat near the back, leather-bound and shut tight with an elastic band. He vaguely recognized it—it belonged to his dad, didn't it? He was always keeping journals, switching randomly between different notebooks over time.

The elastic band came off after he fiddled with it, and the pages smelled like mildew. Not a single word could be made out in the darkness as he flipped through the book—not even with the faint greyness hanging in the room. He couldn't even be sure there were any words written down on the old pages. After a few futile attempts to hold the opened book close to his nose and squint, he unzipped his raincoat and slipped the notebook into his shirt pocket. He'd have to read it in the light back at the house. He stood for a moment, watching the tree branches outside the window bend and lash. It was peaceful in the cabin, safe from the gale beyond its walls and laced with the feeling of his father, but he could not stay here, staring at the window pane and his dad's belongings forever. And he had the notebook to read. He left and pushed the swelling screen door back in once again.

He found his way through the overgrown jungle better this time, trekking over his first path back to the house. The notebook pressed hard against his chest like a piece of burning coal in his pocket. The howling wind mingled with the words that had been yelled in the kitchen. His dad had felt so far away in that moment, maybe farther than ever. He stumbled over a gnarled tree root. His dad couldn't be replaced—not by anyone. Luis would have to become accustomed to quarrels and anger, to a family wilting and dimming from what it was. He couldn't help these things from happening. He wasn't his dad; he wasn't the glue.

He could still feel the empty space beside him at the dining room table. His dad should have been there. His absence hung heavy in the air like the jungle's mist.

With that absence crashing down on him, dense and oppressive, Luis stopped beside a knotty tree trunk and cried. He clenched his eyes shut and let himself bend over in the downpour. The rain slid off his shoulders on the slick material of the raincoat, and he stayed like that for a while. He had to. Then he stood up, took a breath, and continued on.

When he crested the final hill where the thick trees broke, he could see the windows to the kitchen as little squares of yellow in the middle of the black. He made it closer to the back door, pulling his raincoat downwards and taut with his hands in the pockets, pressing the sides of his hood into his cheeks. In the glow from the kitchen windows, he could see that a few patio chairs had blown over in the wind and been scattered across the cement slab. He stepped over one and threw open the back door, which shut hard behind him as he wrenched off his hood.

12:53, said the rooster-shaped clock that hung over the doorway to the living room. *Happy New Year*, thought Luis, as water trickled off his jaw and down his neck. *Happy 1990*.

The kitchen was empty, and the house was quiet. He took a squeaky step towards the living room doorway; his aunt was sprawled out on the couch with a hand over her forehead.

"That fighting really drove you out into the rain, then?" She said in a groggy voice as he came into the room, silhouetted by the kitchen light. "We figured. Your mom said you'd probably had enough of our bickering and ran off for a while."

Luis nodded, but he didn't feel like saying anything in return. He continued through the living room and past the couch, patting his aunt's shoulder as he turned into the hallway. The bathroom light was jarring, and he shut the door behind him, enveloping himself in the sudden bright whiteness. He unzipped the dripping raincoat, pulled off its sleeves, and let it fall to the floor before reaching for the notebook still tucked into his pocket.

His dad's scrawled handwriting was immediately recognizable. It was an old journal, with only half of its pages written in. His dad had probably switched to another notebook halfway into using this one. There were at least five stashed in his mom's closet already, collected after the funeral.

The edges of the pages tickled Luis's fingertips. Each entry was short and composed of incomplete sentences; they were brief, abrupt thoughts, dating back to over a decade ago. Some of the entries were random and didn't make

much sense; others were memories Luis shared. There were plans for trips. A list of materials needed for a remodeling project of the kitchen. A longer entry about Luis's grandmother being in the hospital. Another one, longer, about his brother starting college. And one—one that specifically caught his eye as the pages turned in his hands.

“JUNE 18 - 1976: Luis 21st birthday this Tuesday. (Need to get card.) Thinking about him lately, how proud I am of him. Watching him talk, tell stories, anything. In ways, he reminds me of myself, but he's really someone all his own, someone new and better. Really proud. (Maybe get streamers?)”

And with that, Luis let himself cry again. There was a nudging—an inkling of a realization—somewhere in him. Nothing could replace his dad, and he *wasn't* his dad, no—but he was his child, and he was Luis, and maybe the loss of one didn't have to be the loss of them all.

Really proud.

He could hear it in his dad's voice. And he could imagine the words, if his dad was beside him: *Of course, you could be the glue. Of course.*

The wind shook the house, and his thumb grazed the notebook's edge, searching for a thumbprint of his father.

MADE IN CHINA: MASS PRODUCTION AND THE SUBVERSIVE NARRATIVE OF AI WEIWEI'S *SUNFLOWER SEEDS*

Katie Kimbrough

Abstract

In *Sunflower Seeds*, artist Ai Weiwei communicated not only through the formal and symbolic characteristics of the piece, but also through its manufacture. Under the government of Chairman Mao Zedong, the Chinese people who were loyal to the leader were often depicted as sunflowers framing his image in paintings. In the aftermath of Mao's regime, Ai created an art installation consisting of one hundred million porcelain sunflower seeds covering the floor of a large room. The porcelain sunflower seeds are a symbol of rebirth and represent the untapped potential of lives now outside the oppression of Mao's regime. The audience can walk through and touch the seeds. To produce the work, Ai hired men and women in Jingdezhen, China, a traditional porcelain manufacturing town, and paid fair wages. Around the world, China is known for its manufacturing on a large scale for a low cost, often to the detriment of the Chinese people. However, in this case, Ai Weiwei hired almost 1,600 workers to participate in the creation of his piece. In this work, the traditional symbolism and material production contribute to its overall message.



Figure 1: The making and painting of *Sunflower Seeds* by Ai Weiwei. © Tate, London 2019.

There are various aspects of *Sunflower Seeds*, created by artist Ai Weiwei, that give different meaning to the piece (*Figure 1*). As philosopher John Stuart Mill says, “everything which is usual appears natural,” which, when applied to art, means even the mundane aspects of art must be questioned and examined to see past what appears normal.¹ Ai Weiwei placed meaning within the manufacturing of his piece as well as in its formal characteristics, and because of this, there are various aspects that can be analyzed to gain a full understanding from something as seemingly insignificant as sunflower seeds.

During the Cultural Revolution of Chairman Mao Zedong in China, beginning in 1966, the voices of the people were stifled. In this revolution, China created a Communist country while destroying cultural heritage. From this culture of censorship, Ai Weiwei emerged. His family experienced persecution from the oppressive new government under Mao, and, along with 16 million others, the family was forced to move into labor camps for part of Ai’s youth. Following the death of Chairman Mao in 1976, the Cultural Revolution ended, and the family moved to Beijing, where Ai attended film school. As a young man, he moved to New York City and immersed himself in the art and culture of the city. While in New York City, Ai encountered the readymade art of Marcel Duchamp and took an interest in the style. “Readymade” is a term, coined by Duchamp, for an art piece created from manufactured objects. Ai Weiwei’s collection of works include readymade pieces, which use Chinese cultural objects to create new pieces. For example, *Stool* (2007) is a readymade formed from two three-legged stools, which are commonplace in Chinese homes.² His piece *Sunflower Seeds* (2010) is also a readymade. After 12 years, Ai returned to China to create art that would confront the authority of his country’s government.³

The Communist Chinese government of Ai Weiwei’s childhood, as well as Chinese culture, are major themes found in his pieces. Some examples include *Sunflower Seeds*, *Dropping a Han Dynasty Urn* (1995), and *Study of Perspective – Tiananmen Square* (1995). Ai’s works often address political issues through photographs and controversial actions, ideas he could not express during his childhood due to censorship. When analyzing *Sunflower Seeds*, materialism, iconology, and feminist theory can help examine meaning within the readymade piece.

1 Linda Nochlin, “Why Have There Been No Great Women Artists?” in *Women, Art, and Power and Other Essays* (New York: Routledge, 2018), 152.

2 Sarah U. Green, “The Case for Ai Weiwei | The Art Assignment | PBS Digital Studios,” The Art Assignment, October 6, 2016, documentary, 5:53, <https://www.youtube.com/watch?v=YMsodcAsVU>.

3 Daniel Aloi, “Ai Weiwei: Smashing China’s Traditions in Art and Architecture,” *World Literature Today* 81, no. 4 (2007): 42.

Other well-known works by the artist include photographs documenting performance pieces. In *Study of Perspective – Tiananmen Square*, for example, Ai raises his middle finger to the main gate in the square, and the viewer sees the hand as the subject of the photo. Perhaps his best-known piece is a series of photos called *Dropping a Han Dynasty Urn* in which Ai holds then drops a 2,000-year-old ceramic piece, letting it shatter on the ground.⁴ In an article by Christian Sorace, Ai explains why he makes art like this: “Taking contradictions and making them public is my best weapon.”⁵ He was criticized for destroying a significant work of Chinese art, while others continued to ignore the destruction of Chinese culture that Chairman Mao allowed under his rule. Ai’s art frequently criticizes the Chinese government, which likely led to his arrest in 2011. Ai was held on baseless claims of tax evasion.⁶

In the year prior to his arrest, Ai created *Sunflower Seeds*. Tate Modern, a group of museums in the United Kingdom housing modern art collections, commissioned Ai to create a piece specifically for their Turbine Hall exhibition space as part of an annual series. *Sunflower Seeds* is significant because it, according to Tate Modern, “invites us to look more closely at the ‘Made in China’ phenomenon and the geopolitics of cultural and economic exchange today.”⁷ The large number of seeds adds to the concept of “Made in China.” It is a critique of the scale of manufactured items pouring out of China into other markets. The people and objects are many, and the value must be found in the person and not their profitability. Ai is confronting the country’s Communist ideologies. The subject matter and quantity of one hundred million sunflower seeds are significant in addressing both the Chinese government and its practices.

Materialism, the study of the creation and transfer of objects, can be used to examine how *Sunflower Seeds* was made. For Ai, the means of production was significant. Ai Weiwei chose Jingdezhen, a town 800 miles south of Beijing historically known for their porcelain production, as the location where he would oversee the creation of his piece. He hired more than 1,600 skilled individuals from the town to take part in the process, which had about 30 steps. The individuals he hired to create his piece came from families that had produced porcelain for generations, and they employed a process similar to traditional

4 Ruth Epstein, “Ai Weiwei Artist Overview and Analysis,” *The Art Story*, 2016, <https://www.theartstory.org/artist/ai-weiwei/artworks/>.

5 Christian Sorace, “China’s Last Communist: Ai Weiwei,” *Critical Inquiry* 40, no. 2 (2014): 396–419, doi:10.1086/674120

6 Green, “The Case for Ai Weiwei | The Art Assignment | PBS Digital Studios.”

7 “The Unilever Series: Ai Weiwei: Sunflower Seeds” Tate Modern, 2010, <https://www.tate.org.uk/whats-on/tate-modern/exhibition/unilever-series/unilever-series-ai-weiwei-sunflower-seeds>.

means of porcelain production.⁸ Ai Weiwei was both the creator of the piece and the patron.

One might wonder if knowing the labor was not completed by the artist but by the hands of many people from Jingdezhen, China lessens the impact of the piece. Based on the ideas of Walter Benjamin in *The Work of Art in the Age of Mechanical Reproduction*, it is possible to believe this strips the work of the aura of Ai Weiwei.⁹ Benjamin believed art created by a revered artist had an aura and, “the technique of reproduction detaches the reproduced object from the domain of tradition.” Although Benjamin was talking about reproduction of art, this can also apply to art produced by someone other than the artist. Portions of the process to make the sunflower seeds were mechanical, such as the shaping of the seeds in molds, but other parts were completed by hand. Benjamin says, “the technique of reproduction detaches the reproduced object from the domain of tradition.”¹⁰ However, the production of *Sunflower Seeds* engages more with tradition. It may be because the piece was created in a traditional way, and it creates a greater aura than if Ai Weiwei made it by himself. Ai explains, “In the old times, the whole town was making porcelain for the emperor.”¹¹ He understands the significance of the people producing porcelain works for a patron. It was something done “in the old times,” and something done now, in the 21st century, for his art.

Using Erwin Panofsky’s third level of iconological analysis, which suggests underlying social and cultural influences intrinsic to the message of a piece, art historians can consider the significance of the imagery in *Sunflower Seeds* within the oeuvre of Ai Weiwei.¹² Through this iconological lens, *Sunflower Seeds* looks at an individual person as a member of the whole; the power of many individuals working together in industry and under a government. Art historian Linda Seidel suggests that art historians are “engaged in the construction of a narrative,” thus supporting the process of iconological analysis.¹³ In this narrative, Ai used sunflower seeds as the subject matter to challenge the concept of “Made in China” and China’s Communist ideologies. Ai says, “Sunflowers supported the whole revolution [Mao’s revolution] spiritually and in material ways.”¹⁴ *Sunflower Seeds* comments on and subverts the power of the Chinese

8 Tate Modern, “The Unilever Series: Ai Weiwei: Sunflower Seeds.”

9 Walter Benjamin, *The Work of Art in the Age of Mechanical Reproduction*, trans. by Harry Zohn, ed. by Hannah Arendt (New York: Schocken Books, 1969); available from <https://web.mit.edu/allanmc/www/benjamin.pdf>.

10 Benjamin, *The Work of Art in the Age of Mechanical Reproduction*.

11 Tate Modern, “The Unilever Series: Ai Weiwei: Sunflower Seeds.”

12 Anne D’Alleva, *Methods & Theories of Art History*, (London: Laurence King, 2013).

13 Linda Seidel, “Jan Van Eyck’s Arnolfini Portrait: Business as Usual?” *Critical Inquiry* 16, no. 1 (1989): 55–86, doi:10.1086/448526.

14 Tate Modern “The Unilever Series: Ai Weiwei: Sunflower Seeds.”

government. It is another example of political commentary about his government among many other contemporary art pieces related to Chinese culture.

In this piece, Ai critiques Chinese society, the Communist government, and the global economy. The people of Jingdezhen are not commenting on the society they live in, only participating in the creation of the art piece. In this case, Ai Weiwei is part of the thinking class, while the people of Jingdezhen and audience of *Sunflower Seeds* are the active class the work is about.¹⁵ Those who have time to think and produce art are creating pieces about those who do not have the time or resources.

Around the world, China is known for its manufacturing on a large scale for a low cost. The audience of *Sunflower Seeds* cannot help but think of the concept of “Made in China” when confronted with the massive quantity of porcelain sunflower seeds before them. In this case, the image of the sunflower is not as significant as the quantity. Objects that have been marked with the gold “Made in China” sticker have often been mass-produced for the financial gain of a larger entity at the cost of devaluation of the human labor. The workers Ai employed, by contrast, were fairly compensated for their labor on *Sunflower Seeds*. Ai Weiwei therefore criticizes the Chinese government by producing his sunflower seeds ethically.

When Chairman Mao was depicted in propagandistic posters during his rule, he would sometimes be surrounded by sunflowers. He considered himself the sun, and the Chinese people were the sunflowers facing him, following his leadership.¹⁶ Now, in the aftermath of Mao’s China, all that is left of those sunflowers are the seeds. Ai suggests that the sunflowers represent the followers of Mao, so the sunflower seeds must also hold significance. No longer are the seeds connected to a living flower. However, the future of these seeds could be an entirely new generation free from Mao’s Communist China with abilities and potential of their own.

A final theoretical analysis of *Sunflower Seeds* could be an examination of the responsibilities of both men and women in its production. Men and women held different roles in the creation of *Sunflower Seeds*. Men mostly collected the materials for making the porcelain fired it. Women were solely responsible for the painting of the seeds. Ai explains it is a common practice for women to do work they are able to bring home with them. It enables them to continue to complete their duties to their families, such as going to the market, making meals, and caring for children. Between all the work in the home, women

15 Karl Marx, and Friedrich Engels, “The Ruling Class and the Ruling Ideas... (With Engels) (1845–6),” in *Marx and Modernity*, ed. Robert Antonio (Malden: Blackwell Publishers Ltd, 2003), 60–62.

16 Tate Modern, “The Unilever Series: Ai Weiwei: Sunflower Seeds.”

can also do work that earns the household income. The women of Jingdezhen could bring home unfinished porcelain seeds to paint in their spare time. Ai did not exclusively hire women for this work, but the women were the most skilled in painting porcelain because it was their tradition. In some cases, women in Jingdezhen have been painting porcelain for their entire adult lives. Through the work from Ai, the women could provide for themselves and their families. This project created around 1,600 jobs in the city, and most of those jobs were held by women. All the men and women working for Ai were equal by being unnamed contributors to the piece.¹⁷ Many female hands delicately created the piece, subverting the traditional narrative of masculinity as the revolutionary force. In the creation of this piece, Ai comments on the employment of women as well as their fair compensation as a global topic.

Looking further into China's history, one may see similarities between Ai's piece and the Terracotta Army, a designated UNESCO World Heritage site. Both *Sunflower Seeds* and the Terracotta Army of Emperor Qin Shi Huang represent the Chinese people in relation to their leader. The artists of these pieces depict similar concepts, but the works function as and represent vastly different attitudes. The Terracotta Army worked as a protective tribute meant to honor Qin Shi Huang, but the sunflower seeds in Ai's piece represent the aftermath and untapped potential of the Chinese people's lives without their leader. The sunflowers may have represented the Chinese followers of Mao, but the porcelain sunflower seeds of the piece are a symbol of rebirth and the yet-unrealized potential of lives lived outside the oppression of Mao's regime.

Analyzing *Sunflower Seeds* by artist Ai Weiwei through the lenses of materialism, iconology, and the roles of its creators each have their benefits, but together they create a narrative from the artist and a subversive critique of the Chinese government. John Stuart Mill's "everything which is usual appears natural," means even the mundane aspects of art must be questioned and analyzed.¹⁸ Ai Weiwei placed meaning within the human-driven mass-production of his piece as well as in its formal characteristics, illustrating the intricate and nuanced meanings in an object as seemingly insignificant as a sunflower seed.

17 Tate Modern, "The Unilever Series: Ai Weiwei: Sunflower Seeds."

18 Nochlin, "Why Have There Been No Great Women Artists?"

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COLLEGE OF HEALTH AND HUMAN
SERVICES

ONCOLOGY: THE FUTURE OF PHYSICAL THERAPY EDUCATION

Shaun Chilton

Abstract

The American Board of Physical Therapy Specialties and American Physical Therapy Association have acknowledged oncology (the study of cancer causation, development, and treatment) as a certified specialization of physical therapy beginning in fall 2019. The domain of physical therapy may experience several changes due to this acknowledgment. Using the works of Laura Gilchrist (PT, PhD) and colleague Mary Galantino (PT, PhD), this paper demonstrates the need for modification of physical therapy programs in the United States to include instruction and training on oncological studies. This paper explores ways in which oncology could be effectively implemented into physical therapy programs, specifically through the modification of curriculum, research projects, and internship opportunities.

Keywords: physical therapy, oncology, education, physical therapy specializations

INTRODUCTION

During 2018, it was estimated 1,735,350 United States citizens would be newly diagnosed with cancer, and 609,640 would die due to the disease; while this number of estimated deaths was large, the average death rate among cancer patients has consistently trended downward since the 1990s (American Cancer Society, 2018, p. 2). *Figure 1* and *Figure 2* illustrate that the number of new cancer cases and cancer deaths is expected to rise (Centers for Disease Control and Prevention, 2016). Conversely, *Figure 1* and *Figure 2* show the incidence rate is projected to stay relatively constant, while the death rate is expected to decline (Centers for Disease Control and Prevention, 2016). The increasing longevity of survival among oncology patients, along with the potential addition of millions of oncology patients each year, has caused a substantial increase in the number of patients requiring cancer-related medical care.

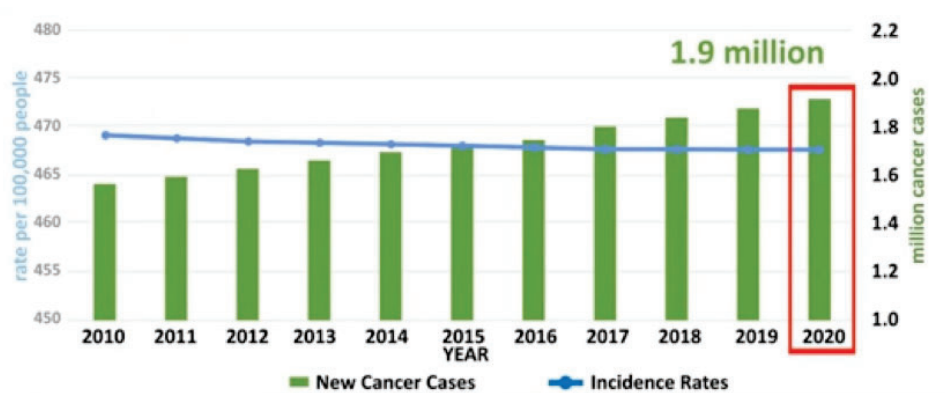


Figure 1: Projected New Cancer Cases. Image courtesy of the Centers for Disease Control and Prevention. https://www.cdc.gov/cancer/dcpc/research/articles/cancer_2020.htm

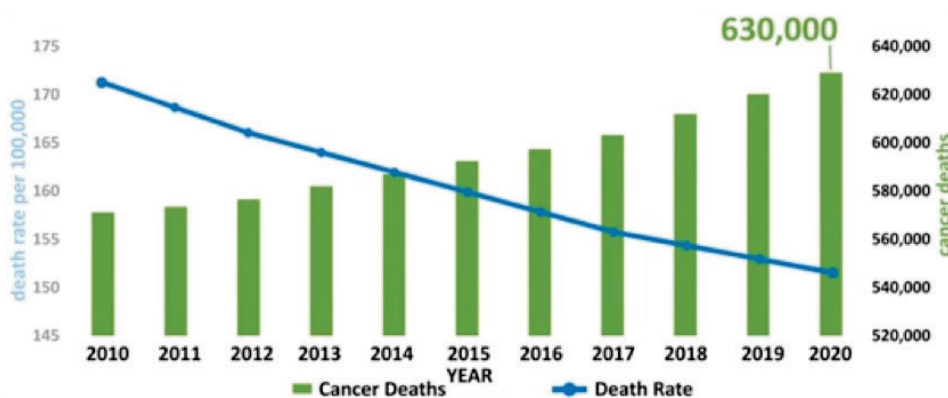


Figure 2: Projected Number of Cancer Deaths. Image courtesy of the Centers for Disease Control and Prevention. https://www.cdc.gov/cancer/dcpc/research/articles/cancer_2020.htm

Due to the increasing number of oncology patients requiring medical care and research promoting the use of exercise-related rehabilitation for cancer patients, interaction between oncology patients and physical therapists is greatly increasing (Gilchrist et al., 2009). Furthermore, the American Board of Physical Therapy Specialties (ABPTS) and the American Physical Therapy Association (APTA) have decided to add oncology to the list of certified specializations within physical therapy starting in fall 2019.

The ABPTS and APTA recognizing oncology as a certified specialization will cause significant change in both the practical and research settings of physical therapy. Physical therapists being able to receive an accredited designation for their expertise in oncology could positively impact funding and approval rates for oncological research related to physical therapy. Additionally, both the

ABPTS and APTA are highly influential associations, and their acknowledgment of physical therapy as an effective treatment for oncology patients could further increase interactions between oncology patients and physical therapists as physical therapists begin working within hospitals and outpatient clinics. The prospective increase in oncology patient and physical therapist interaction will require physical therapists to have an increased knowledge of oncological treatment and cancer rehabilitation. Physical therapy programs in the United States must adapt, specifically in curriculum, research, and internship opportunities, to the changes occurring within the field of physical therapy due to the addition of oncology to board-certified specializations in 2019.

CURRENT TREATMENTS APPLIED IN ONCOLOGY

Physical therapy within oncology exists as a single intervention within a larger multimodal approach to cancer treatment. Physical therapy is most effectively used in oncological treatment to alleviate or prevent symptoms either directly arising from cancer or as side effects from other modes of cancer treatment (Gilchrist et al., 2009). Consequently, for oncological physical therapy treatment to be successful, it is essential that physical therapists involved in the treatment plan of a cancer patient understand all aspects of his or her treatment.

There are presently several types of treatments oncologists use to treat patients: surgical therapy, radiation therapy, and various types of systemic therapies, such as chemotherapy, hormonal therapy, and targeted therapy (American Cancer Society, 2016, p. 2). These types of treatments have side effects, which can present themselves physically, physiologically, and psychologically, and can range in severity (Newton, Hickey, & Marrs, 2009, p. 139).

The main role of physical therapists working within oncology is to provide comfort to patients through the management of various cancer symptoms and cancer-treatment side effects. Physical therapy, through various modalities, techniques, and exercise prescription, can be used to treat several common side effects associated with surgical therapy, radiation therapy, and systemic therapies. The side effects, which physical therapists can effectively treat among oncological patients, range from decreasing the probability of postoperative infection to mitigating fatigue and bone density loss (Benedetti, Furlini, Zati, & Mauro, 2018, p. 8; Mock et al., 1997, p. 991; Thakral et al., 2013).

Surgical Therapy

Surgery is a therapeutic approach often used within oncology. Around 60% of cancer patients are treated with surgery, either as a singular treatment or as part of a multimodal treatment plan. Surgical procedures are used by oncologists for cancer prevention, diagnosis, staging, and treatment. Surgery is most effectively used to treat oncology patients during the early stages of cancer; if cancer is diagnosed at an early stage, surgeons can sometimes remove entire tumors from the affected areas. Cancer that has progressed to advanced stages or exists in a functional area of the body may only permit the surgeon to resect a portion of the tumor. This means the oncology patient must undergo other types of treatment to either meet the goal of cure, reduce symptoms, or in palliative cases, extend and/or increase the quality of survival (Newton et al., 2009, p. 139).

Oncological surgery, like all types of surgery, may cause the presentation of certain side effects in the patient. *Table 1* shows the various side effects associated with surgical therapy in oncology cases; none of these side effects are expected to be life-threatening (American Cancer Society, 2016, p. 3). Additionally, pain, along with pain medications commonly prescribed after surgery, may cause fatigue (Mayo Clinic Staff, 2014).

Several techniques within physical therapy can help mitigate side effects often associated with surgery. Electrical stimulation is a modality typically used to produce muscle contractions through the application of an electrical current via electrodes placed on the skin (Allen, 2014, p. 2). Patients may receive electrical stimulation as part of their post-operative rehabilitation to facilitate muscular contraction in muscles suffering from atrophy. In addition to producing muscular contractions, electrical stimulation has been shown to reduce infection, pain, and tissue damage, all of which are concerns after oncological surgery (Thakral et al., 2013). Furthermore, physical therapists can aid oncological patients in increasing the functionality of body structures affected by surgery through exercise prescription and manual therapy.

Radiation Therapy

Radiation therapy uses high-energy particles, or x-rays, which generate ionizing radiation by expelling electrons from their orbit. This type of therapy is commonly used for localized cancer treatment, with an estimated 60% of cancer patients receiving some type of radiation therapy. Several physical, chemical, and biochemical factors occur to produce the effects of radiation, the most notable being double-strand breaks in DNA. Radiation therapy can be delivered in several ways, including brachytherapy, radioisotope therapy, ste-

reotactic radiosurgery, and, most commonly, external beam therapy. Although radiation treatment can be used as a single source of therapy for oncology patients, it is often combined with surgery or chemotherapy. Most side effects of radiation therapy are site-specific, such as alopecia (absence or loss of hair); late cognitive changes when used on the brain; or nausea and vomiting when used in the abdominal region. Two common side effects of radiation therapy that lack site-specificity are pain and fatigue (See *Table 1*) (Newton et al., 2009, p. 141; Stedman, 2012, p. 63).

Fatigue induced by radiation therapy, and even general cancer-related fatigue, has been shown to decrease in response to exercise programs (Mock et al., 1997, p. 991; Scott & Posmontier, 2017, p. 66). Through the prescription of mild exercise programs, physical therapists can potentially reduce fatigue in oncology patients receiving radiation therapy and increase their overall quality of life.

Systemic Therapies

Systemic therapies involve drugs, which are transported via the bloodstream. Because systemic therapy relies on the bloodstream, it has the potential to affect all parts of the body. While the transportation mechanisms of different types of systemic therapies are identical, the mechanisms by which they function deviate (American Cancer Society, 2016, p. 3). Chemotherapy, for instance, targets cells that grow rapidly within the body; cancer cells are characterized by their irrepressible and abnormal growth, making them a target for chemotherapeutic drugs. Chemotherapy can inhibit cancer cell multiplication, invasion, and metastasis. Another form of systemic therapy, hormonal therapy, involves using drugs that block specific receptors and various feedback loops to suppress or inhibit the circulation of certain natural hormones within the body (Newton et al., 2009, p. 184, 314). Targeted therapy is a newer form of systemic therapy that uses drugs to attack specific molecules on or around cancer cells that foster cancer growth. *Table 1* shows the various side effects associated with systemic therapies (American Cancer Society, 2016, p. 3-4).

Fatigue and bone density loss are two common side effects of systemic therapies that physical therapists can successfully reduce in oncological patients. Physical therapists can effectively reduce fatigue related to chemotherapy through the prescription of an exercise program (Mock et al., 1997, p. 991; Scott & Posmontier, 2017, p. 66). In addition to decreasing fatigue, the implementation of exercise programs into oncological treatment could lead to decreases in bone loss and even increases in bone mineral density of treated patients (Benedetti et al., 2018, p. 8).

Table 1: Associated Side Effects of Common Cancer Treatments

Note: Table 1 is adapted from information found at the American Cancer Society and Mosby's Oncology Nursing Advisor: A Comprehensive Guide to Clinical Practice.

Treatment Type		Side Effects
<i>Surgical Therapy</i>		Bleeding, blood clotting, damage to nearby tissue, damage to nearby organs, pain, infection, functional impairment to certain parts of the body
<i>Systemic Therapies</i>		Thrombocytopenia, blood clotting, bone density loss, bowel dysfunction, fatigue, hair changes, heart damage, immune suppression, infertility, cognitive deficits, nausea, taste change, weight changes, numbness, and pain
<i>Radiation Therapy</i>	Site of Therapy:	
	<i>Brain</i>	Alopecia, late cognitive change
	<i>Head and Neck</i>	Xerostomia, mucositis, dental caries, dysphagia
	<i>Chest</i>	Cough, pneumonitis, late fibrosis
	<i>Abdomen</i>	Nausea and vomiting
	<i>Pelvis</i>	Diarrhea, cystitis, infertility
	<i>Skin</i>	Erythema, dry and moist desquamation

PHYSICAL THERAPY EDUCATION: THE ADDITION OF ONCOLOGICAL STUDIES

Typically, physical therapy program curricula include nine semesters of courses, which focus on medical/clinical sciences, healthcare management, and research structure. Additionally, physical therapy programs require students to complete several clinical rotations in order to obtain their doctoral degree in physical therapy. While physical therapy programs already include the study of various modalities, techniques, and exercise prescriptions in their general curricula, they do not incorporate how these skills can be utilized within oncological treatment. Additionally, physical therapy programs do not integrate specific protocols for treating oncology patients within their current coursework. The most effective way to ensure physical therapists understand cancer treatment and are prepared to work with oncology patients would be to modify

physical therapy education to incorporate oncological studies. The revision of physical therapy programs should occur in curriculum, as well as internship and research opportunities.

Revision of Curriculum

It is indisputable that the practice of oncological physical therapy is growing, and consequently, the requirement for physical therapists to be knowledgeable in oncology should expand proportionally. Despite this, individuals may argue against revisions to the curricula of physical therapy programs to include oncological study. Opponents to the modification of physical therapy programs might say the time physical therapy programs have to educate their students is too limited to accommodate classes that focus on specific areas of physical therapy, like oncology. While it is true that time is limited in physical therapy programs, there is one way in which the implementation of area-specific curriculum could occur with ease: physical therapy programs should begin including oncology-specific elective courses within curriculum.

Most institutions have already allotted specific requirements into their programs to allow students to enroll in elective courses. Additionally, these institutions offer a number of area-specific elective courses, such as women's health, pediatrics, and sports physical therapy, within their physical therapy programs. While physical therapy programs have incorporated several courses focused on specializations currently board-certifiable by the ABPTS, only the University of Puget Sound offers an elective course on oncological studies within their physical therapy program (University of Puget Sound, 2018).

By implementing an elective course focusing on oncology, physical therapy programs could incorporate oncology into their program without disrupting the established core curriculum. Furthermore, offering oncology as an elective course would provide flexibility and diversity in physical therapy programs, allowing students to evaluate the necessity of oncological studies to their education based on their unique professional interests. While the addition of an oncology elective course may create additional expenses for physical therapy programs, these costs could be addressed through minute increases in tuition costs. Moreover, training established faculty members to instruct elective oncology courses could minimize additional expenses created by these courses. Adding oncology to physical therapy programs as an elective course would provide students interested in practicing oncological physical therapy a fundamental knowledge of oncology they could build upon without accumulating significant financial or opportunity costs.

Creating Internship and Research Opportunities

In addition to the revision of graduate program curricula for physical therapy, institutions should also consider using internship and research opportunities to introduce oncology into their physical therapy programs. Using resources institutions already have available, such as established faculty involved in student internship placement, physical therapy programs could examine oncological internship opportunities within their surrounding local and regional areas and compile lists of available internship opportunities in which physical therapy students could gain experience in oncological physical therapy. Additionally, institutions could apply for federal and state grants, which could be used to create on-campus internship and research opportunities related to oncology for physical therapy students.

Internship and research positions related to oncology would help physical therapy students gain experience with oncological studies in a practical setting, allowing the students to obtain a central knowledge of oncology treatment, and providing the students an opportunity to practice their knowledge through applied training with an experienced professional. Additionally, clinical internships and research projects are already scheduled within the curriculum of the typical physical therapy graduate program. This means, as it does with the addition of oncological elective courses, expanding internship and research opportunities to include oncology would allow students to become familiar with oncology in their education without altering the core-curriculum traditionally found in physical therapy programs around the United States.

CONCLUSION

With the American Board of Physical Therapy Specialties' decision to allow physical therapists to become board-certified in oncology, the already growing field of oncological physical therapy will expand even further. Due to the role physical therapists occupy within the multi-dimensional treatment of cancer, students studying physical therapy require exposure to oncology in their education. Physical therapy schools should carefully consider addressing this need through revisions to curriculum, internship opportunities, and research projects to incorporate oncology into their programs cost-effectively.

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ACCULTURATION, BMI, BLOOD PRESSURE, TASTE PREFERENCE, AND FOOD BEHAVIORS AMONG INTERNATIONAL STUDENTS

Kimberly Korff and Dr. Anne Marie Hunter

Abstract

This study examined the impact of dietary acculturation on international students' preferences, behaviors, BMI, and blood pressure at Missouri State University during the academic year 2018–2019. The participants of the study were 33 international students of various ages and nationalities. Two groups were evaluated; the first group of 22 participants (Group A) had 19 weeks between trials, and the second group of 11 participants (Group B) had six weeks between trials. Participants completed a food behavior and acculturation questionnaire and a sensory evaluation of detection and preference for sweetness, saltiness, and spiciness using a five-point Likert scale. Additionally, anthropometric measurements of weight, height, and blood pressure were obtained. Data were collected at two intervals for each participant and changes were assessed for significance. Overall, participants had a mean increase in weight of 1.36 lb between trials. Twelve participants gained weight with a mean of 3.6 lb. There were no significant changes in BMI or mean systolic blood pressure. There was a significant difference in acculturation scores between Groups A and B ($p = .038$) with Group A scoring higher. For both groups, the acculturation scores of the second trial were higher than the initial but did not quite reach significance ($p = .053$). Participants who had spent under 12 weeks in the U.S. ranked samples higher in saltiness than those who had spent 12 weeks or more in the U.S. Females had an increased and males had a decreased preference for spiciness between trials ($p = .024$). In conclusion, some participants experienced an increase in weight, changes in taste preference, and a greater acculturation to American-style food and lifestyle. These changes have potential to increase risks of negative health outcomes related to diet and lifestyle choices.

Keywords: dietary acculturation, taste preference, weight, BMI, international students, food habits

INTRODUCTION

Each year, thousands of international students come to the United States to further their studies. In a new environment, students often make substantial changes to their food behaviors, which may result in shifts of weight, fasting blood glucose, and blood pressure.¹ As with many behavioral changes in humans, changes in beliefs and food preferences can occur in tandem. Perhaps the environmental exposures these students face not only influence physical, observable measurements but also their everyday behaviors, underlying beliefs, and taste preferences. Several studies have hinted at this possibility, including a South Korean study of Chinese international students in which the level of acculturation to South Korean culture correlated with weight gain.² The sample of 142 Chinese students in South Korea experienced a decrease in fruit and vegetable consumption and an increase in poor eating habits, such as eating meals quickly. Male and more acculturated participants were more prone to gaining weight. This phenomenon can vary by country and gender. Another study showed Chinese women in the United States had a higher acculturation correlating to a greater variety and adequacy but lower monitoring of intake.² These changes in weight or other measures of health can pose risks to health status. A 2015 study at a Midwestern university interviewed 2,000 randomly selected college students and found 20.2% were overweight and 7.7% obese, both of which were associated with lower academic and psychological health.³ Another study at Virginia Tech in 2010 found that international students experienced significant weight gain (average of 2.79 lb) and an increased intake of high-calorie American-style foods over 12 weeks.¹ Universities are certainly not immune to the obesity epidemic in the United States, and people who immigrate to the United States will experience the effects of necessary lifestyle changes that accompany their new environment.

The Merriam-Webster definition of *acculturation* is the “cultural modification of an individual, group, or people by adapting to or borrowing traits from another culture.” It follows, then, that dietary acculturation refers to the adoption of food and dietary behaviors of another culture. While there is plenty of literature discussing the general phenomenon of acculturation, dietary acculturation is not widely understood. Dietary acculturation occurs when a South Asian person immigrates to the United States and gradually decreases his preference for spicy foods, or a Chinese woman begins to order ice in her water after living in the United States for several months. While dietary acculturation is expected for anyone experiencing a new culture, the process can be accelerated and extensive in the context of special environments like universities. Some

studies have examined the relationship between acculturation, anthropometric measurements, and dietary intake among international students. Few have considered the effect of time spent in the U.S. on dietary and anthropometric changes, and currently, no published studies to our knowledge have explored the element of taste detection and preference in the assessment of dietary acculturation. While it is known that social factors, such as parental influence, can impact children's food preference and weight status, this effect has not been significantly evaluated in adults, namely in immigrants to western countries.⁴ In an increasingly globalized world, this subject is relevant to those who care for the needs of immigrants and foreign residents. The purpose of this study was to explore taste preference and anthropometric measurements as evaluators of dietary acculturation of international students.

METHODS

Design

This longitudinal study examined the food behaviors and beliefs, taste detection and preference, weight, height, and blood pressure of 33 international students at Missouri State University. The initial responses of Group A (22 participants) were taken in November 2018 (T1), while the first responses of Group B (11 participants) were taken in January 2019 (T2). Both groups then completed their second responses in March 2019 (T3); thus, Group A's responses (T1 to T3) were taken approximately 19 weeks apart, and Group B's responses (T2 to T3) approximately 6 weeks apart.

Participants

International students were invited to volunteer for the study during international student events, including international student orientation, student organizations, and class periods, with permission from International Services and the English Language Institute. Interested students provided their email address and were contacted to sign up for an appointment for the first evaluation. Upon arrival to the appointment, participants were given a detailed description of the study's procedures and contents of the samples to be consumed before they signed a consent form. Participants did not follow any preparatory health or exercise routines prior to participating in the study.

The 33 international students completed initial evaluations in T1 or T2. Of the participants, 60% (n = 20) were male and 40% (n = 13) were female. Of the participants, 30% had a country of origin in East Asia [China (n = 9), Japan (n = 1)] and 30% in South Asia [Bangladesh (n = 6), India (n = 2),

Pakistan (n = 2)]. Other participants came from Saudi Arabia (n = 3), Nigeria (n = 3), and 1 participant each came from Tajikistan, Italy, Spain, Costa Rica, Palestine, Brazil, and Iran. The average age of participants was 23, and 55% (n = 18) were 22 years old or under. Only four participants were 30 years old or above, and the oldest participant was 39. Participants had been living in the U.S. between 2 and 64 weeks at the time of their initial evaluation (T1 or T2). Approximately 85% of participants (n = 28) had been living in the U.S. for no more than 14 weeks, and the average length of residence was 14 weeks.

A total of 1,031 international students from 73 countries were enrolled at Missouri State University in Spring 2019, including the 33 participants in this study. The largest percentage of these students came from China, which is represented as 27% in the study. Of the 33 participants who completed in T1 or T2, only 21 completed in T3. Results of initial weight, BMI, and questionnaire responses were reported for the total sample population of the 33 participants, while results in changes between the T1/T2 and T3 were reported only for the 21 participants.

Assessment Tools and Anthropometric Measurements

All documents used in this study were in English and completed by the participants. All participants belonged to academic programs whose language requirements met the need for English literacy for this study. Participants completed a questionnaire consisting of 16 questions on a five-point Likert scale (from strongly disagree to strongly agree). The questions related to previous food practices in their native country and current food practices in the U.S., beliefs about food and personal health in the U.S., social behavior, and feelings toward U.S. culture. An expert in the field wrote and reviewed the questions for face-validity.

Body weight, height, and blood pressure were measured at the initial visit for all participants (T1/T2), and weight and blood pressure were measured at the second visit (T3). Participants removed shoes and heavy jackets during the evaluation. Weight was determined on a digital Detecto wall-mount scale and recorded to the nearest tenth of a pound. Height was taken on a digital Dectecto wall-mount stadiometer and recorded to the nearest half-inch. Body Mass Index (BMI) was then calculated from weight and height with the following equation: **BMI = weight (lb) / height (in)² × 703** and rounded to the nearest tenth. Finally, blood pressure was measured using an Omron upper arm blood pressure monitor in mm/Hg.

Afterward, participants were led to a sensory evaluation laboratory under incandescent and red lighting to compensate for color differences between

samples. They were asked to evaluate three basic tastants (saltiness, spiciness, and sweetness) at three concentrations (weak, medium, and strong). *Table 1* shows the prepared concentrations. The salty solution was prepared using an unsalted vegetable stock and iodized salt, the spicy solution was made with a commercial hot sauce, and the sweet solution was produced with a homemade lemonade sweetened with granulated sugar to three varying degrees. Concentration parameters for the salty and sweet solutions were modeled after a 2016 *Chem Senses* study, whose concentrations were developed from a series of taste intensity scale tests at the University of Minnesota-St. Paul.⁶ Participants were given the three samples per one tastant at a time, along with water and crackers to consume between samples for palate cleansing.⁷ Each sample cup was labeled with a three-digit code, which corresponded to two questions on the evaluation sheet. Participants were asked to individually rank each sample's taste and flavor (for example, from 1 (lacks saltiness) to 5 (very salty) and their preference for the taste (from 1 (unacceptable) to 5 (very acceptable)). Finally, participants noted which sample they preferred the most and the least. This procedure was strictly followed for the second and third tastant.

Table 1: Prepared concentrations of taste solutions for trials (T1, T2, and T3).

Taste Solutions and Concentrations				
Taste	Ingredients	Weak (g/mL)	Medium (g/mL)	Strong (g/mL)
<i>Salty</i>	Vegetable stock, Iodized salt	.0025	.0066	.0096
<i>Spicy</i>	Valentina Mexican hot sauce	.0077	.0520	.1550
<i>Sweet</i>	Lemonade, granulated sugar	.0366	.0875	.1500

Note: Every trial used the same solutions (T1, T2, and T3). Solutions are shown as g of solute per mL water.

Data Analysis

To assess the effects of the independent variables and the interactions between them, a 2-way ANOVA test with repeated measures was used to determine differences in the level of acculturation between Groups A and B. A summary score for acculturation was developed using responses from eight survey questions (*Figure 1*). To appropriately analyze the ranking of dependent variables on the same individual, a three-way ANOVA test with repeated measures was used to determine changes in acculturation scores with time spent in the U.S. and gender. The differences were evaluated based on a significance of $p < .05$.

Question	Trial	Response Given (1-5)				
		1	2	3	4	5
Q1: I enjoy food from my home country more than American-style food.	1	0	0	3	6	12
	2	0	1	3	6	11
Q2: It is more important to exercise than control food intake when trying to maintain weight.	1	1	8	3	6	3
	2	1	7	7	4	2
*Q3: I can be equally healthy or healthier in the U.S. than in my home country.	1	2	7	4	6	2
	2	3	6	8	4	3
Q4: It is difficult for me to maintain my current weight or lose weight while in the U.S.	1	1	6	3	7	4
	2	2	5	3	5	6
Q5: While in the U.S., I eat American-style food more often than food from my home country.	1	1	1	5	6	8
	2	1	4	3	7	6
Q6: In my home country, I ate American-style food at least once per week.	1	9	7	2	0	3
	2	3	9	4	3	2
Q7: There are many healthy food options available for me in the U.S.	1	3	5	1	9	3
	2	2	7	3	7	2
Q8: I usually eat a larger amount of food at mealtimes in the U.S. than in my home country.	1	3	3	4	7	4
	2	1	7	3	5	5
*Q9: I usually eat more frequently in the U.S. than in my home country.	1	5	7	4	2	3
	2	3	7	4	6	1
*Q10: I have adopted parts of U.S. food behaviors into my own lifestyle.	1	0	4	2	14	1
	2	0	0	7	11	3
*Q11: I have adopted parts of U.S. culture into my own lifestyle.	1	0	3	8	10	0
	2	0	0	5	12	4
*Q12: I have American friends or a host family that I spend time with on a weekly basis.	1	0	4	8	5	4
	2	0	3	3	12	3
Q13: In the U.S., I spend more time within my own culture than American culture or any other culture.	1	6	3	7	2	3
	2	5	4	4	7	1
*Q14: I feel I am transitioning well to the U.S. way of life.	1	0	1	5	11	4
	2	0	2	6	9	4
*Q15: I feel comfortable with the U.S. culture.	1	0	0	4	15	2
	2	0	0	5	13	3
*Q16: Overall, I feel physically healthier in the U.S.	1	1	3	12	4	1
	2	1	2	12	5	1

Figure 1: Questionnaire completed by participants on 5-point Likert scale with responses 1 (strongly disagree) to 5 (strongly agree). Questions noted with a * were used for the acculturation summary score.

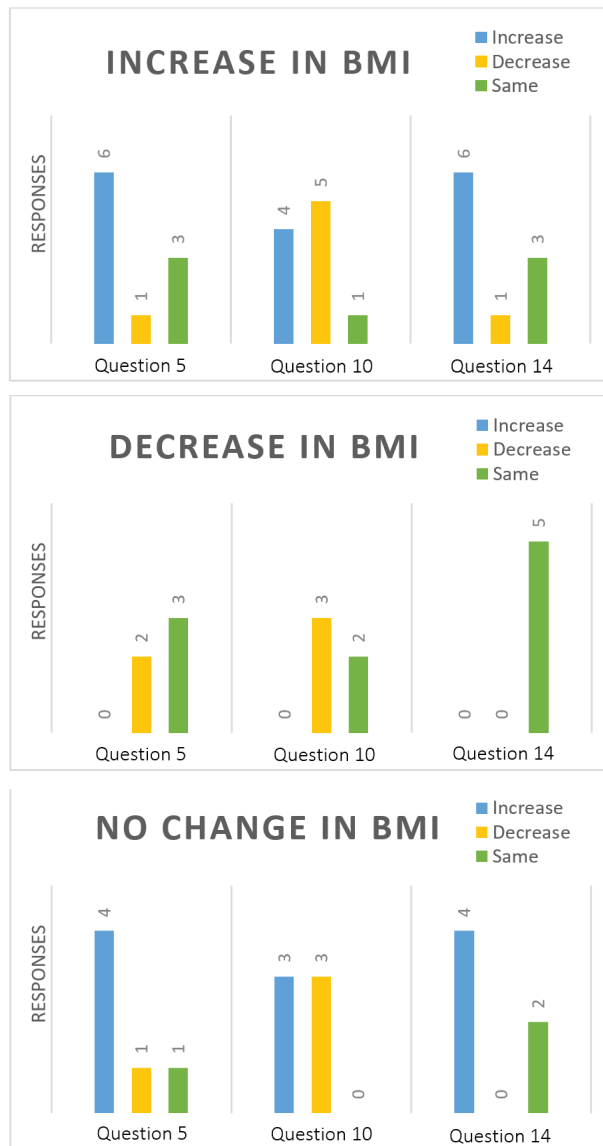


Figure 2: Changes in participant responses (increase indicating greater acculturation) from T1/T2 to T3, categorized by change in BMI. *Question 5:* “While in the U.S., I eat American-style food more often than food from my home country.” *Question 10:* “I have adopted parts of U.S. food behaviors into my own lifestyle.” *Question 14:* “I feel I am transitioning well to the U.S. way of life.”

RESULTS

The average weight of the total sample population ($n = 33$) was 144 lb, and average blood pressure was 113/74. Average BMI was 22.9 (normal weight status). Of the participants, 12% ($n = 4$) had an underweight status, with the lowest BMI at 16.6. Of the students, 63.6% ($n = 21$) were in the optimal BMI range, 18% ($n = 6$) in overweight status, and two participants in the obese category (BMI over 30.1). East Asian students had a lower average BMI and weight (136 lb and BMI = 21.5) than the total sample population. South Asian students had the same average weight as the total sample population with a slightly higher BMI (23.5). Both groups had an increase in average weight and BMI between T1/T2 and T3 within normal ranges.

Of the 21 participants who completed T3, 12 (57%) gained weight with an average of 3.6 lbs. Six participants (28%) lost weight, an average of 2.4 lb lost. Five (24%) participants, who had been in the U.S. 12 weeks or more, gained weight, with an average gain of 3.5 lb, while seven (33%) of those who had been in the U.S. fewer than 12 weeks gained weight, with an average gain of 4.3 lb. While participants who had spent 12 weeks or more in the U.S. had a lower mean BMI than those under 12 weeks (for both men and women), no significant difference was found in gender or time spent in the U.S. for BMI. Average blood pressure was the same from T1/T2 to T3 (113/74) with no significant difference found by gender or BMI.

In response to the statement, “While in the U.S., I eat American-style food more often than food from my home country,” only two participants reported a greater agreement in T3, while six participants reported a greater disagreement. Interestingly, this suggests, regardless of the variety of cuisine participants tend to eat, they maintained the same or similar habits between trials, and of those whose habits did change, there was a decrease in consumption of American-style food. Eight participants (38%) reported an increase in the adoption of U.S. food behaviors, and ten participants (47%) reported an increase in the adoption of U.S. social/cultural behaviors. Most participants (76%) reported the same response in both trials to the statement, “I feel I am transitioning well to the U.S. way of life,” with 62% reporting “agree” or “strongly agree.”

ANOVA acculturation scores showed a significant difference between Groups A and B ($p = .038$), with Group A scoring higher than Group B in acculturated behavior. For both groups, the T3 acculturation score was higher than the T1/T2 score with a nearly significant p value of .053. While there was no significant difference in initial scores between males and females or between those who spent fewer than or more than 12 weeks in the U.S., an overall sig-

nificant increase in acculturation score from T1/T2 to T3 by gender and time in the U.S., $p = .019$, was indicated. Questionnaire responses in relation to changes in BMI showed those with an increase in BMI gave responses that suggested an increase in acculturation, and most who had a decrease in BMI gave the same response as given in T1/T2. *Figure 2* shows participant responses to three questions evaluating acculturation sorted by change in BMI. For example, 60% of participants who experienced an increased BMI reported a higher agreement with question one in T2/T3 than they had in T1, suggesting an increase in acculturation between trials, while only 10% reported a decreased agreement to question one.

For both males and females, those who had spent under 12 weeks in the U.S. ranked salt samples as saltier than those who had spent 12 weeks or more in the U.S. There were no overall significant differences in detection or preference of saltiness or sweetness by gender or time in the U.S. However, females had an increased preference for spiciness with increased time in the U.S. Overall, females tended to rank samples spicier than males, $p = .015$. Additionally, there was a significant difference in spiciness preference between males and females between T1/T2 and T3. Female preference for spiciness increased, while male preference for spiciness decreased, $p = .024$.

DISCUSSION

It is common with significant life changes to experience shifts in body weight, and international students often experience weight gain upon arriving to a western country, such as the United States. Almohanna et al.¹ found 68% of international students in a Virginia Tech study gained weight over a 12-week period, a slightly higher increase than in this study. A previous study at Oxford Brookes University on 109 newly arrived Malaysian students by Reeves et al.⁸ found a mean increase in weight (1.98 lb) in three months. After six months, however, the mean weight had not decreased from the value at three months. Few longer-term studies are available for comparison; however, this suggests increases in weight among international students to western countries may plateau or even return to normal over time.

Although it is important that 57% of our participants gained weight with an average increase of 3.6 lb, the highest increase in BMI was 1.6 (from 22.8 to 24.4), and no participants changed in BMI classification. This may be a reason for no significant change in blood pressure. Almohanna et al.¹ found a slight but statistically insignificant decrease in mean blood pressure among their participants. Participants who had spent more time in the U.S. did not

have a significantly higher BMI, suggesting weight changes may be subtle and tend to return to normal over time, or perhaps 19 weeks is not long enough to see the complete pattern of weight change participants will experience. It is possible weight gain will continue, though gradually, as time spent in the U.S. increases, but more long-term studies are needed to explore such a trend.

In this study, changes in food habits were measured through anthropometric data and general dietary questionnaires. Our findings suggest a general and slight increase in weight and raises the question of whether this was due to a higher intake of American foods. However, as previously noted, a decline in consumption of American foods was suggested. Instead, Reeves et al.⁸ used food diaries, food frequency questionnaires, and basal metabolic rate (BMR). Among Malaysian students, no significant differences were found in BMR, anthropometric measurements, or total energy intake. A slight increase was found in weight, though smaller than in our findings. Coupled with our findings, this may suggest that an increase in weight and in American food consumption in international students may not have a causal but rather a correlative relationship. The addition of a food frequency questionnaire or food diary may have provided more clarity.

Responses to the acculturation and food behaviors questionnaire resulted in a few trends. There was a slight decrease in reported consumption of American-style foods over home country foods. Interestingly, this suggests that, regardless of which type of cuisine participants chose to eat, they maintained the same or similar habits between trials, and of those whose habits did change, there was a decrease in consumption of American-style food. A possible explanation might be that upon first arrival, international students tend to explore unfamiliar dishes more openly and excitedly, but they soon locate access to more familiar and preferred foods. There was a slight increase in reported adoption of American food behaviors and social/cultural behaviors, suggesting international students can very quickly begin to acculturate to their host country. However, the decreased reported consumption of American-style foods suggests participants view “food behaviors” and “social/cultural behaviors” as distinct from American foods, and immigrants may adopt one and not the other in a new country. Most participants felt they were transitioning equally between T1/T2 and T3, and over half (62%) felt they were transitioning well. Thus, they learned to adapt quite well and quickly, which was not significantly affected between trials. An overall increase in reported acculturation was found between trials for both genders and regardless of time spent in the U.S. This suggests international students will increase their acculturation in a host country as time passes.

It is unclear why preference for spiciness had significant changes, while preference for sweetness and saltiness did not. It is also intriguing that female preference for spiciness increased and male preference decreased. Perhaps the lack of spiciness in foods in the Midwestern United States compared with other countries is the most significantly different flavor of the three examined. The tendency of American foods to be quite salty or sweet possibly does not increase preference for these flavors but instead reduces it and produces a greater desire for other spices. As no similar studies on the subject exist to compare results with, further study is necessary to determine whether these effects would repeat in another population or if they were an anomaly.

Limitations

In this study, solutions for sweetness, saltiness, and spiciness were used to evaluate taste preference in participants. Taste strips with isolated flavors were not used because the nature of this study focuses more on taste preference related to foods rather than taste detection. While the solutions prepared for sweetness and saltiness were modeled after a previous study, the three concentrations chosen for spiciness cannot be verified as an accurate measure of the flavor; thus, the significant changes in spiciness preference among males and females should be considered with context to the solutions in this study.

The acculturation score was developed from questions in this study, which were not modeled from a standardized acculturation scale. To our knowledge, no singular scale exists for dietary acculturation for all U.S. immigrants or ethnic populations, though standardized questionnaires for individual ethnic groups have been created, such as the Dietary Acculturation Questionnaire for Filipino Americans (DAQFA).⁹ Additionally, most existing acculturation scales are not dietary but generally behavioral and would not serve the purposes of this study.

Dietary acculturation is not a thoroughly-researched phenomenon, and, as noted by Martinez et al.,¹⁰ there are many misconceptions and assumptions in available research. For instance, researchers often assume migrants from a less-developed country to a western country had diets higher in fruits and vegetables and lower in fat, salt, and sugar. However, as shown by a previous study on Latino immigrants, the opposite may be true. Migrants' economic status and city of residence also greatly influence dietary habits. As with many studies in the literature, the nature of our study did not allow for thorough consideration of participants' diet prior to migration to the U.S. This prevents us from confirming that migration to the U.S. alone resulted in these changes.

The low number of returning participants (21 from 35) greatly impacted the

sample size, and results may have been different had all participants returned. Because many countries were represented here and there was a small sample size from each, it was not possible to compare country of origin with changes in acculturation and measurements. Additionally, all participants came from the same university and region in the U.S., and further studies in other areas of the U.S. may offer different results. Other evaluation measures may have impacted the study, including the five-point Likert scale, which may not have been wide enough to show true changes in responses between T1/T2 and T3.

Finally, the amount of time between trials may not have been enough to show significant changes in acculturation, weight, BMI, blood pressure, and taste preference. A longer study with more intervals of trials may be more useful to demonstrate the pattern of change in international students over time.

CONCLUSIONS

International students at Missouri State University had a small increase in weight, a slight decrease in reported consumption of American-style foods, and an increase in adopting food and social behaviors over the data collection period. Most participants felt they were transitioning well, a feeling they appeared to maintain between trials. Results from the study support the hypothesis that international students continue to experience both dietary and social acculturation during their time in the U.S. and tend to gain a small amount of weight, especially during the first few months after arrival.

Acculturation, whether dietary or social, is a significant factor in the quality of an individual's experience in a new country. Institutions such as universities are often the first to receive immigrants and international students and are responsible for supporting their transition into the culture of the host country. These institutions may consider implementing culturally competent programs to provide education about the characteristics and risks of the host country's diet and recommendations for a balanced diet and healthy lifestyle. Small but strategic initiatives can help improve the health outcomes and experience of acculturation for international students in the United States.

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CONFLICT OF INTEREST DISCLOSURE

Authors declare no conflicts of interest. This research study received approval by the Missouri State University Institutional Review Board.

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EFFECT OF COMPENSATORY CAPSID MUTATIONS ON HIV-1 INFECTIVITY AND UNCOATING

Kate Okland and Dr. Amy Hulme

Abstract

HIV infection is a major global health issue affecting more than 35 million lives. Mutations affecting the structure and interactions of the capsid monomers of HIV alter the processes of infectivity and uncoating. The uncoating process occurs after the virus has entered the cell and is the disassembly of viral capsids to allow the viral genome to enter the nucleus. The current hypothesis suggests that changes to capsid stability affects uncoating, but this is not fully known. This study tests the hypothesis using two capsid mutations. The capsid mutation E45A results in a hyperstable capsid and decreases infectivity. The secondary mutation, R132A, rescues the hyperstable E45A mutation to restore HIV infectivity. To further examine the effect of compensatory capsid mutations on HIV infectivity and uncoating, we studied wild-type, E45A, and E45A/R132A viruses in the microglial cell line, TCN14. We used the Cyclosporine A washout assay to study the kinetics of uncoating of each virus in TCN14 cells. In this cell line, the R132A compensatory mutation was able to rescue the uncoating of the E45A mutation to kinetics similar to wild-type. These results suggest capsid stability correlates with uncoating kinetics in microglial cells.

Keywords: HIV-1, capsid mutation, infectivity, uncoating, microglia, immunosuppressive drugs

INTRODUCTION

Human immunodeficiency virus type 1 (HIV-1) is a retrovirus that spreads through certain body fluids (blood, semen, and breast milk) and attacks the body's immune system, specifically the CD4+ T cells, macrophages, dendritic cells, and microglial cells. As HIV gradually breaks down the patient's immune system, it leads to acquired immunodeficiency syndrome (AIDS). At this stage, a person's immune system is very weak, leading to various infections due to a lack of a proper defense system (1). In this study, the specific cell type under investigation is microglial cells. Microglia are the cells in the central nervous system (CNS) infected by HIV-1 and can lead to HIV-associated dementia. Microglia are the main form of active immune defense in the CNS and re-

spond to an infected monocyte by phagocytosis (2). The cultured microglial cell lines TCN14 and CHME3 were used in this study (3).

The stages of the viral cycle of HIV are complex (4). HIV-1 must first bind to the receptors of the CD4+ T-cell. To do so, HIV-1 envelope spike, gp120, binds to two cellular proteins—CD4 receptor and CCR5. Then, the viral envelope fuses with the cell membrane. The next step is the process of uncoating, which is the focus of this study. Uncoating is the loss of viral capsid that occurs within the cytoplasm of infected cells before the entry of the viral genome into the nucleus (5). It is hypothesized that reverse transcription of the viral RNA is concurrent with uncoating. After the viral genome enters the nucleus, the integrase can integrate the viral DNA into the chromosomal DNA to create a provirus. These steps are essential to establish the infection of a cell, and further steps in the viral life cycle will make more copies of the virus. When virus replication proceeds, it results in the spread of infection in the host.

The proper structure of the conical capsid is a crucial part in the events of HIV infection, such as in uncoating (6, 7). Along with the viral genome, each capsid also contains key enzymes endogenously found in HIV, including integrase, reverse transcriptase, nucleocapsid, protease, regulatory proteins (Rev and Tat), and the accessory protein Nef (4). Regulatory proteins will aid in the process of transcription, translation, and transport, while accessory proteins may help avoid the host cell responses (4). The capsid is composed of approximately 1500 monomers of p24 capsid (CA) protein. CA protein consists of two domains with the N- and C-terminal domains connected by a flexible linker in S146 and P147 (8, 9). The capsid has a hexameric lattice made of the NTD capsid protein connected by the CTD of the capsid proteins (8, 9). CA monomers associate as hexamers and pentamers, which then make up the lattice as shown in *Figure 1*.

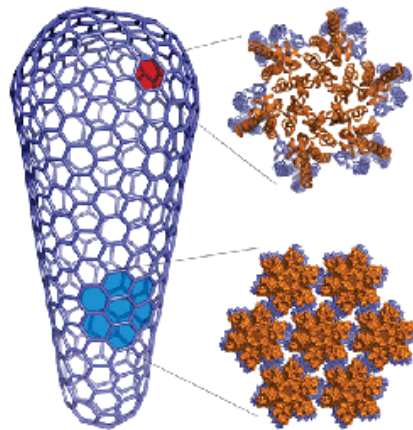


Figure 1: Schematic of the conical capsid (left) and the hexamers of CA monomers that will make-up the lattice (top right). How the hexamers of CA proteins interact with other hexamers is shown at the bottom right. Although *Figure 1* shows the CA monomers assembling as a hexamer, they could also exist as a pentamers. HIV's capsid is composed of about 250 CA hexamers and 12 CA pentamers. Sourced and adapted from (9).

The uncoating process, the disassembly of the conical capsid, occurs after the fusion of the virus to the host cell and is an important determinant for viral pathogenicity (5). Although the exact process of uncoating remains poorly understood, one thing to note is viral capsid stability does play a role in this process (7, 10). Mutations in the capsid that affect stability correlate with a reduction in infectivity (7, 10, 11). An example of a mutation that can occur is E45A, which causes a hyperstable capsid and decreases infectivity (7). The mutation causes slower uncoating, which leads to decreased infectivity (11). In 2012, the Yang et al. study showed that R132T, combined with E45A, was more infectious than the E45A, indicating that the functional defect of E45A is rescued (10). The secondary mutation, R132T, rescues the hyperstable E45A mutation to restore capsid stability and HIV infectivity. E45A is in Helix 2, while R132T is in Helix 7 of the CA protein (6). Interactions of helices are important to capsid stability, with Helix 7 being involved in polar interactions and in water-mediated interactions. Helix 2, along with Helix 1 and 3, are thought to be key helices in the ability of the capsid to have differing orientation of either a hexamer or pentamer (8, 9).

To enable the quantification of the timing of the uncoating kinetics, a Cyclosporine A (CsA) washout assay was used (12, 13). CsA is an immunosuppressive drug that binds with a high affinity to TRIM-CypA. TRIM-CypA is used to detect the presence of intact capsids of infected cells. Because TRIM-CypA will bind to the capsid and have a restrictive effect on the virus to prevent infectivity, CsA binds to TRIM-CypA and prevents it from binding to the capsid. A microglial cell line was engineered to express TRIM-CypA by infecting CHME3 cells with a TRIM-CypA-expressing retroviral vector. TCN14 is the cell line of CHME3 microglial cells that expresses the TRIM-CypA. In the CsA washout assay, TRIM-CypA restriction is switched on at various times post-infection by removing CsA. Once CsA is removed, TRIM-CypA is able to bind to the coated viral capsid and restrict infection. At this time, only uncoated virions can infect the cell. The virus used in this experiment was a GFP reporter virus. The amount of GFP positive cells was detected with a flow cytometer to determine the number of infected cells. Therefore, at each washout time point, the percentage of GFP fluorescent cells is representative of the percentage of uncoated virions. This process highlights the kinetics of how quickly uncoating occurs indirectly. Although indirect, this method has been supported by other uncoating assays, and a correlation of uncoating with these different methods has been shown (14, 15).

In this study, the ability of the secondary R132A mutation to compensate and rescue the E45A mutation was analyzed in detail. We hypothesized that

the compensatory would rescue the defect in the process of uncoating induced by the primary mutation. These findings will provide a better understanding of the ways capsid stability affects uncoating.

MATERIALS AND METHODS

DNA extraction

HB101 cells were transformed with E45A and E45A/R132A proviral DNA plasmids using the “*E. coli* Competent Cells: Multi-use Quick Protocol” created by Promega. *E. coli* was incubated at 37 °C overnight on LB plates with 100 µg/µL ampicillin to apply selective pressure. After growth for approximately 14 hours, a single colony was used to inoculate a culture in LB-Amp broth and was grown overnight at 37 °C. Plasmid DNA was then isolated using the Qiagen Maxi-Prep Plasmid Purification Kit.

Cell Cultures Condition

Cells used in this study were 293T, CHME3, and TCN14 (3). These cells varied in their required maintenance and media. The 293T cells were cultured in Dulbeccos’s modified Eagle medium (Cellgro), supplemented with 10% fetal bovine serum (Gibco) and 1% penicillin-streptomycin-glutamine (Gibco). The CHME3 and TCN14 cells were incubated in Dulbeccos’s modified Eagle medium (Cellgro), 5% fetal bovine serum (Gibco), 1% penicillin-streptomycin-glutamine (Gibco), and 1% of 100 mM Sodium Pyruvate (Cellgro). All lines were split with trypsin, but CHME3 and TCN14 required a prior wash step with phosphate-buffer saline (PBS) to remove cellular debris. Cells were maintained at 37 °C and 5% CO₂.

Virus Generation

The 293T cells were incubated in a tissue culture incubator maintained at 37°C and 5% CO₂. On the day of transfection, 293T cells were 80–90% confluent. The transfection mixture contained 6 µg HIV-GFP proviral plasmid, 4 µg vesicular stomatitis virus g (VSV-g) plasmid, and 40 µL of 10 µg/µL polyethyleneimine (PEI) in 1 mL Dulbecco’s Modified Eagle Media (Cellgro). This step was replicated for other proviral plasmid containing point mutations E45A and E45A/R132A in replacement of the HIV-GFP pro-viral plasmid. Then, the mixture was added to a 10 cm dish in a drop-wise manner to produce a virus with a VSV-g pseudotyped envelope. The cells were incubated for 24 hours. Media was then aspirated from the 10 cm dish and replaced with 10 mL of new warmed cell culture media. The cells went back into the tissue

culture incubator for 16–18 hours. The media, now containing the virus, was removed from the 10 cm dish by pipetting. To harvest the virus, the supernatant was filtered using a 25 mL syringe filter. Then, a 1 mL aliquot of the virus was placed into cryovials and stored at -80°C until use.

Viral Infectivity Assay

To ensure proper virus generation occurred, viral infectivity assays were performed on an 8-well serial dilution. The 2000X stock of polybrene was diluted to 2X for the first column of a 96-well plate and 1X in the remaining wells with the media. Then, 100 μL of the virus was added to the first well of the row of the tested-out virus. Then, 100 μL of the new well was transferred to the next well. These steps were repeated until reaching the end of the 8-well serial dilution. A negative control was used for comparison in which no virus was introduced to the cell. A positive control was also used in comparison, which a virus with a known infectivity was used. The following day, cells were given fresh media and placed back into an incubator at 37°C and 5% CO_2 . The following day, the cells were harvested with the use of 100 μL of trypsin and translocated onto a new 96-well plate containing a cell fix. This cell fix contained equal parts PBS and paraformaldehyde. The plates were wrapped in parafilm and foil and stored at 4°C for a minimum of four hours to allow any residual virus to fix. The percentage of GFP positive cells was determined using an Accuri C6 flow cytometer.

CsA Washout Assay

TCN14 cells were seeded in a 96-well tissue culture plate at a concentration of 6500 cells/well to yield about 80–90% confluency on the day of the washout assay (12). Each experimental reaction was performed in triplicate with a

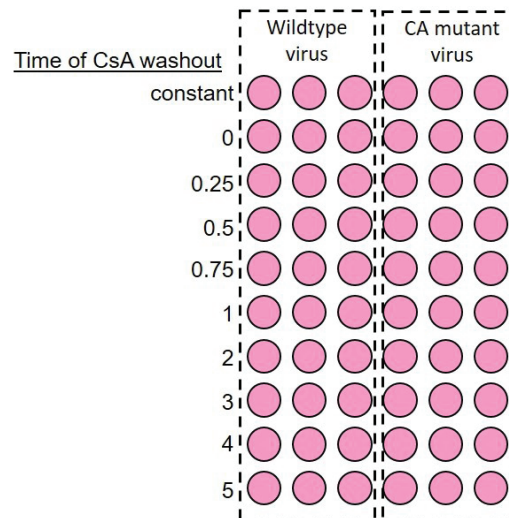


Figure 2: Schematic of reactions in the CsA washout assay. Each pink circle represents one well in a 96-well plate. Each reaction in the assay was done in triplicate wells. For each virus type, CsA was washed out at 0, 0.25, 0.5, 0.75, 1, 2, 3, 4, and 5 hours post-infection. The carrier control ethanol was also washed out in a similar manner (not pictured). *Figure 2* shows a subset of reactions used in the assay, the CsA washout of HIV-GFP wildtype virus and a capsid mutant virus.

corresponding ethanol control (*Figure 2*). For each virus, three wells were used for the constant CsA treatment (positive control), and three wells were used for constant ethanol treatment (negative control). For flow cytometry, three wells of uninfected TCN14 cells were continuously incubated in cell culture media and were used as a negative control. The following day at a confluency of 80–90%, a spinoculation mix was made for each experimental condition in a 15 mL conical tube. For each well, 100 μ L of spinoculation mix was used. One of the reactions contained 0.05 μ L of 10 μ g/ μ L polybrene, 0.05 μ L of 5 mM CsA (Calbiochem) or ethanol, and the GFP reporter virus to cell culture media. The dilution of reporter virus for each virus was as follows: 1/10 HIV GFP, 1/4 E45A/132A, and 2/5 E45A. Then, media was aspirated and replaced with 100 μ L of spinoculation media to each well using a multichannel pipette. The 96-well plate was placed in a centrifuge, cooled to 16 °C, and spinoculated at 1200 \times g at 16 °C for one hour. During the wait period, a replacement CsA and EtOH media was made without the polybrene and virus. This replacement media was warmed along with TCN14 media that contains Dulbecco's modified Eagle medium (Cellgro), 10% fetal bovine serum (Gibco), 1% penicillin-streptomycin-glutamine (Gibco), and 5 mL of 100 mM Sodium Pyruvate in a 37 °C water bath. After one hour had passed, the plate was removed from the centrifuge. The spinoculation media was aspirated from all the wells and replaced with 100 μ L of warmed CsA or ethanol media. The zero-washout hour time point was performed by replacing the spinoculation media with 200 μ L of warmed cell culture media lacking CsA or ethanol. The plate was then returned to the tissue culture incubator until the 15-minute time point. At this time point, media was aspirated from the 15-minute time point reactions and replaced with 200 μ L of warmed culture media. The plate was returned to the incubator and washout continued in this manner for the 30- and 45-minute, and 1-, 2-, 3-, 4-, and 5-hour time points (*Figure 2*). After the washout assay was performed, the cells were incubated for two days at the standard conditions above. After the allotted time of incubation, the washout media was aspirated and replaced with 100 μ L trypsin to each well. This mixture was then incubated at 37 °C until the cells appeared to be peeling up or had detached. Then, 100 μ L of paraformaldehyde was added to each well of a new 96-well plate. Prior to transferring the cells into the paraformaldehyde fix, they were resuspended by pipetting. The plates were then wrapped in parafilm and foil until they were ready for flow cytometry. Cells were stored at 4 °C for a minimum of four hours to allow any residual virus to fix. The percentage of GFP positive cells was determined using Accuri C6 flow cytometer. Ethanol served as the control for TRIM-CypA restriction at each time point. The

percentage of GFP positive cells in the ethanol control was subtracted from the CsA reactions percentage of GFP positive cells for each time point of the reaction to remove the background fluorescence. The data was normalized by taking the highest values of the averaged triplicate fluorescence and dividing all other averages to set the highest percentage at 100%. A line of best fit was established for the two data points that contained 50% uncoating so the half-life of uncoating could be determined.

RESULTS

Effect of the compensatory mutation on viral infectivity

The infectivity of the viruses was performed on CHME3 cell prior to the washout assays to verify the effect of each CA mutation. CHME3 cells were infected with the HIV-GFP wild-type or CA mutant virus. The flow cytometry results indicating viral infectivity of HIV-GFP wild-type, E45A mutant, and E45A/R132A mutant viruses are shown in *Figure 3*. Both CA mutations decreased infectivity in CHME3 cells at dilutions up to 1/128, with the E45A/R132A mutant virus being more similar to the HIV-GFP wild-type virus. In addition, both the wild-type and E45A/R132A mutant virus had steadily decreasing infectivity from the 1/4 dilution. The E45A mutant virus steadily de-

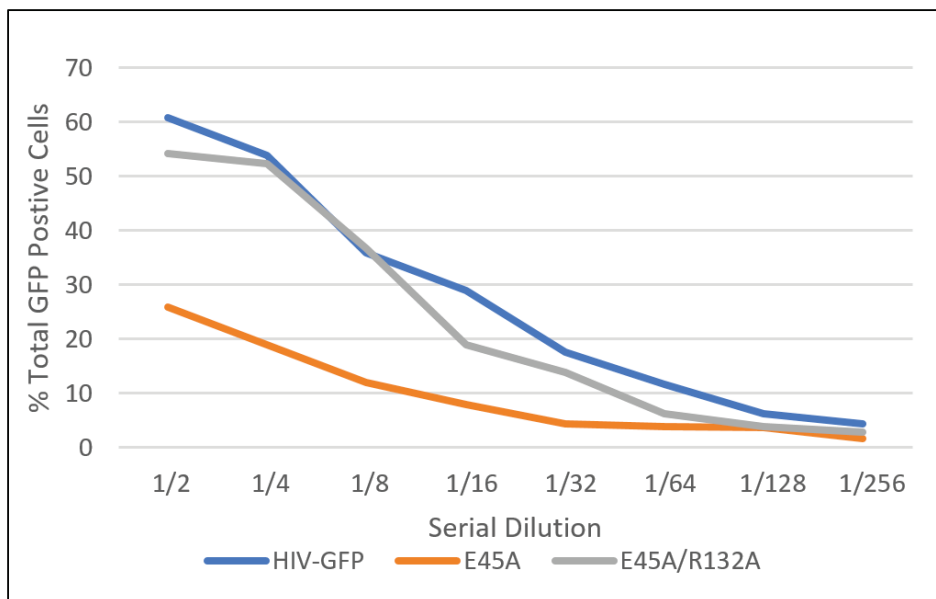


Figure 3: Percentage of GFP positive cells at different dilutions of virus. Viral infectivity assay performed using a serial dilution of wild-type, E45A, and E45A/R132A HIV-GFP viruses.

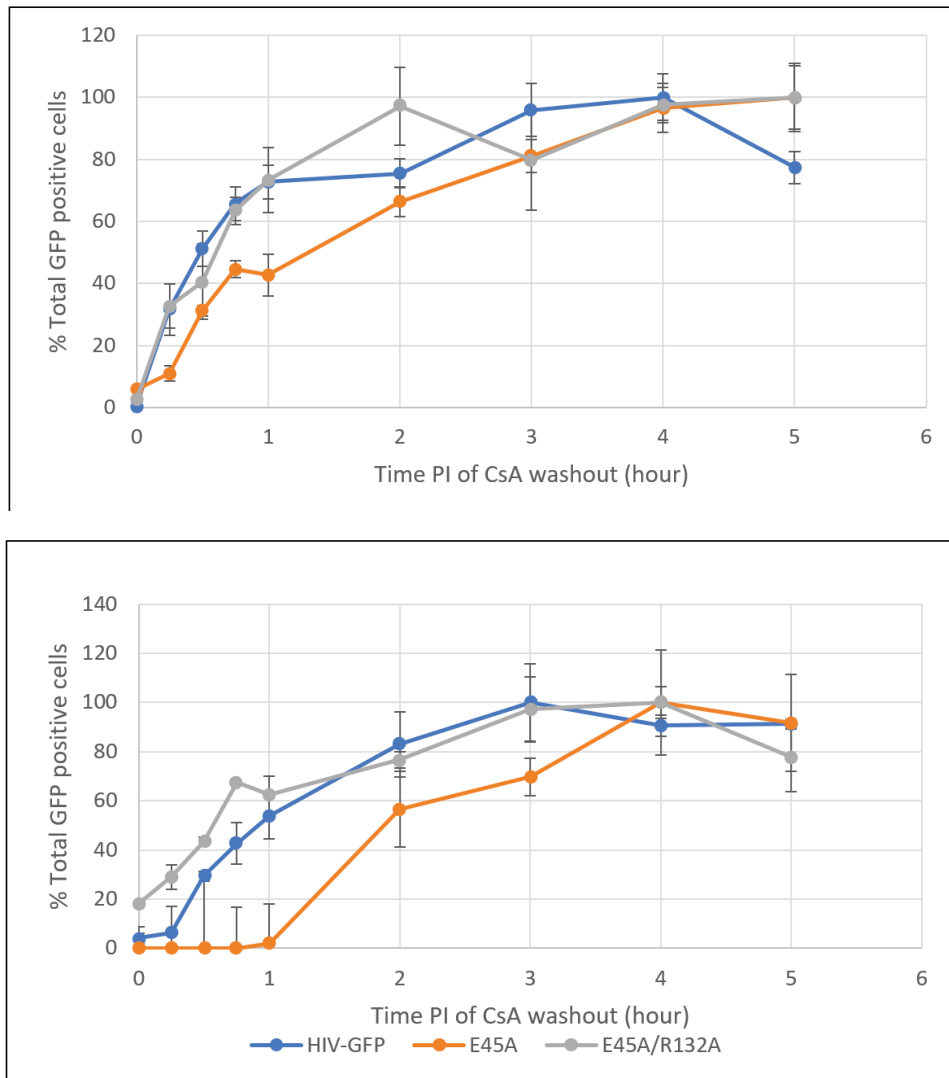


Figure 4: Effect of CA mutations on uncoating kinetics. CsA washout assay was performed with wild-type, E45A, and E45A/R132A viruses. Two trials of the experiment are signified by the tables. The time post-infection of CsA washout assay is shown on the x-axis of the line graphs. The y-axis shows the percentage of the total GFP positive cells. Error bars signify standard errors.

creased but seemed to plateau after the 1/32 dilution. All strains were analyzed to select 30–40% fluorescence in CsA washout assay. These dilutions used for the washout assay were 1/10 for HIV-GFP wild-type virus, 1/4 for E45A/132A mutant virus, and 2/5 for E45A mutant virus.

Effect of the compensatory capsid mutation on uncoating

The capsid mutation E45A affected the infectivity of the CHME3 cells in *Figure 3*. To further analyze the effects of these capsid mutations on uncoating, two CsA washout assays were performed with the CA mutant viruses and HIV-GFP wild-type virus. A third assay was performed but results were unreliable due to low infectivity. TCN14 cells expressing TRIM-CypA were infected with either HIV-GFP wild-type virus or CA mutant viruses in the presence of CsA, followed by a washout of CsA at various time points post-infection. The percentage of infected cells indicated the percentage of uncoated virions at each time point, as only uncoated particles could infect the cell. All viruses tested showed uncoating within the first hour and then gradually plateaued by 4 to 5 hours post-infection (*Figure 4*). Both CA mutations affected the uncoating kinetics of the virus. The E45A mutant virus delayed the kinetics of uncoating as evidenced by both trials of CsA washout. The E45A mutant virus had a substantial decrease of percent total of GFP positive cells at time points up to four hours, compared to both HIV-GFP wild-type and E45A/R132A mutant viruses. The virus with the R132A compensatory mutation mimicked HIV-GFP wild-type and, at the two-hour time point, even surpassed the percent total GFP positive cells compared to the wild-type (*Figure 4*).

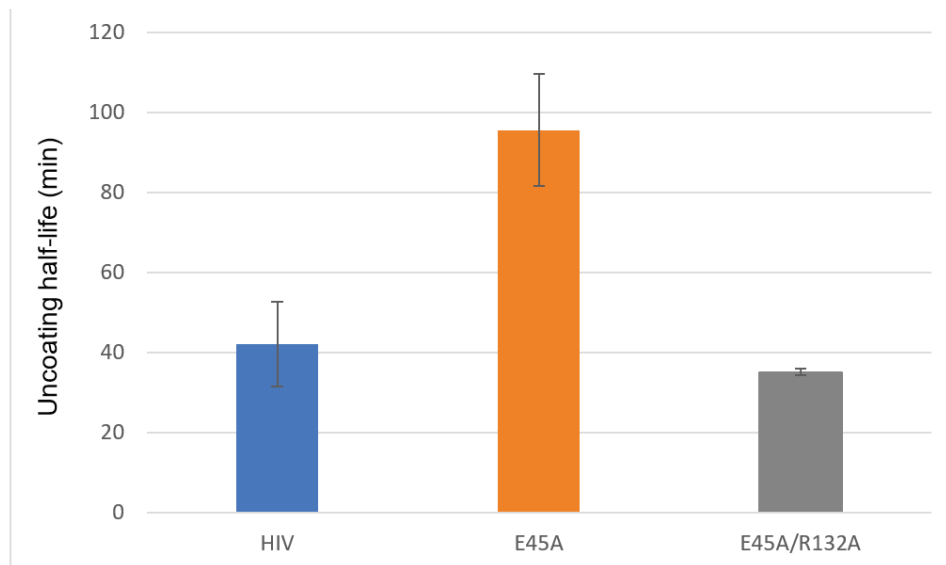


Figure 5: Effect of CA mutations on uncoating half-lives. This bar graph compares the average half-life of uncoating between wild-type HIV-GFP and the CA mutants performed in two independent experiments. Error bars signify standard error.

The half-life calculations further verified the findings of the CsA washout assay and the kinetics observed. A line of best fit was established from the CsA washout assays and extrapolated two data points for each virus that contained 50% uncoating so the half-life of uncoating could be determined. The E45A mutant virus had a half-life almost double of the HIV-GFP wild-type virus (*Figure 5*). The average half-life of uncoating of the E45A mutant virus was 95.45 minutes, which is increased when compared to the HIV-GFP wild-type average half-life of 42.017 minutes and E45A/R132A mutant virus average half-life of 35.2 (*Figure 5*). These results all indicate a change to the uncoating kinetics due to the CA mutations.

DISCUSSION

This study shows the importance of capsid stability to infectivity and the process of uncoating in cell-based assays. This data supports the hypothesis that the stability of viral capsid is crucial for HIV uncoating and replication (7, 10, 11). Although the specifics of uncoating remains unclear, it is hypothesized uncoating too early or too late will decrease infectivity. In a study by Yang et al., this idea supported using two second-site suppressor mutations (10). In the Yang et al. study, the capsid mutation P38A decreased capsid stability and infectivity, but second-site suppressor mutation T216I was able to restore intracellular activities and infectivity. Yang et al. also observed a similar restoration of capsid stability and infectivity with the compensatory mutation R132T in E45A mutant virus. The Yang et al. study did not examine the kinetics of uncoating, so we hypothesized the compensatory mutation R132A would rescue the defect in the process of uncoating induced by the primary E45A mutation. With the use of the CsA washout assay, we found the compensatory capsid mutation R132A was able to restore the uncoating kinetics of the E45A mutant virus to levels similar to wild-type (*Figure 4*). In addition, the half-life of uncoating was approximately greater (>2) in the E45A mutant virus compared to the wild-type virus (*Figure 5*). These results are similar to another study by Hulme et al. showing the kinetics of uncoating for the E45A mutant virus in owl monkey cells (11). The E45A mutation also decreased the overall infectivity of the virus, while the R132A compensatory mutation restored infectivity to near wild-type levels (*Figure 3*). The relative infectivity of the E45A and E45A/R132A mutant viruses is similar to the results from the Yang et al. study (10). Therefore, we hypothesize the R132A compensatory mutation alters the uncoating kinetics back to wild-type kinetics, restoring infectivity.

The washout assay looks at the kinetics of uncoating so the viral genome can infect the cell. In the E45 mutant virus, there was still productive infection even though the process of uncoating was altered. The E45A and R132A mutations are in the same vicinity on the surface of the CA molecule facing the NTD-NTD (6, 10). The E45A mutation is found on helix 2, which may be important for interaction with cellular or viral factors. Therefore, one hypothesis is the defect the E45A elicits on the helix 2 is masked by the R132A mutation in helix 7 to allow proper binding of cellular factors that need helix 2 and restore intracellular activities.

These findings may explain how an individual may have a worsening prognosis if these compensatory mutations are found. Patients who have HIV take antiretroviral treatments to help with their ailments. Typically, a patient must take a combination of these drugs. This is because HIV has a highly diversified genetic makeup even within one host. Antiretroviral treatments may then act as selection pressures to diversifying genomes. The patient may take antivirals, but these drugs may not work because the patient had a mutation like R132A mimicking a wild-type virus which evolved due to the selective pressure applied. Therefore, screening for these mutations in infected patients may help millions of people still affected by HIV and improve antiretroviral treatments (16).

In future research, the same study could be performed in a different microglial cell line, like C20, that expresses the TRIM-CypA to compare results (17). Cellular environment can vary between different cell types that may alter uncoating. If similar results are seen in a different cell line—E45A causes the hyperstability of the capsid and R132A compensates for this defect to restore uncoating kinetics—then it will further support the conclusions of this study. With the same logic of confirmatory purposes, comparing and contrasting different uncoating assays may ensure measurements are accurate and reproducible (5). Different uncoating assays vary ways in which the capsid protein is detected. For example, detecting uncoating using a sucrose gradient allows detection of purified viral cores at the bottom and CA protein at the top of the gradient. Achieving similar results using different assays would further support the conclusions of this study. In future research, it would be beneficial to analyze the exact mechanism of TRIM-CypA restriction to see what stage of uncoating is detected in the CsA washout assay. Although the mystery of the uncoating process remains, this study increases the understanding of HIV and may lead to better antiretrovirals or a better understanding of the reasons for a patient's prognosis.

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ON UNDERSTANDING THE BARRIERS FOR MALE SURVIVORS OF SEXUAL VIOLENCE

Beta Lear

Abstract

Survivors of sexual trauma face barriers following any incident of sexual violence, and all survivors have a right to accessible treatment. However, this literature review highlights the experiences of male survivors as an underserved population in terms of available research and treatment. Many barriers exist for male survivors, including gender socialization, feminist ideology, victim-to-offender ideology, and treatment programs based on the female experience. Coping experiences remain largely undistinguished among the male survivor subpopulations, including men of color and men who identify as LGBTQ+. This lack of understanding further isolates survivors from support they desperately need. Researchers must investigate prevalence and incidence rates, document individual experiences, record demographic variables in experience, and test treatment theories so professionals can effectively support this silently suffering population.

Keywords: sexual abuse, sexual trauma, male survivors, treatment services

INTRODUCTION

Survivors of sexual trauma often share multiple psychosomatic consequences, which may extend throughout adulthood for the majority of survivors (McGrath, Nilsen, & Kerley, 2011). Affectual symptomatology includes fear, shame, guilt, and humiliation, which often exist jointly with psychological disorders like anxiety, depression, post-traumatic stress, eating disorders, and more. Cognitive distortions and self-blame intensify affective symptomatology, while physical and sexual manifestations of trauma include stress-based illnesses, chronic pain, sexual dysfunction (*i.e.* dysfunction in desire, arousal, and orgasm), and sexually transmitted infections (STIs). To cope, survivors find themselves tangled in harmful behavioral cycles, such as substance abuse, high-risk sexual behavior, and impulsive behavior. The wounds of trauma also disrupt and damage interpersonal cycles, and many survivors find themselves in self-destructive relationships and re-victimization scenarios (American College of Obstetricians and Gynecologists [ACOG], 2011). Given nearly 43.6%

(52.2 million) women and 24.8% (27.6 million) men are affected by sexual violence in their lifetime in the United States, the causes, acts, convictions, and consequences of sexual violence are prevalent public health issues (National Intimate Partner and Sexual Violence Survey [NIPSVS], 2015).

Sexual violence refers to rape, being forced to penetrate someone else, sexual coercion, and unwanted sexual contact. The majority of survivors report experiencing sexual violence early in life; 81.3% (20.8 million) female survivors and 70.8% (2.0 million) male survivors report their first experience preceding age 25. Of this population, 51.3% of male and 43.2% of female survivors experienced victimization before age 18 (NIPSVS, 2015). Consequently, this literature review will limit its investigation to adult male survivors in the United States, especially those who suffered child sexual abuse (CSA). CSA is defined as any sexual contact between an adult and a child where consent is not or cannot be given regardless of whether the child understands the nature of the sexual contact, including sexual penetration, oral sex, sexual touching, and non-contact sexual acts like exposure (ACOG, 2011). The term “sexual trauma” is used to refer to the consequences following the act of sexual violence.

This review does not intend to minimize the abuse experiences of female survivors; any prevalence of sexual violence is an issue. However, this review seeks to highlight the experiences of male survivors of sexual violence as an underserved and overlooked population. Specific information on male survivors is sparse, especially since men disclose their abuse less frequently than women (Easton, Saltzman, & Willis, 2014). Male survivors face barriers that impede disclosure like gender socialization and victim-to-offender ideology. These barriers significantly impact survivors’ self-reported quality of life and treatment ideology, as current treatments appear to be based on female survivor experiences. Further, cultural-based variations of male survivor experiences exist, but little research has been conducted. When we fail to acknowledge variations among sexual violence experiences, we communicate that some experiences have greater value and significance than others, further forcing survivors into years of silent, isolated suffering. All survivors of sexual abuse have the right to accessible support from a society that can provide individualized, effective, and life-improving services. Changes in ideology and research must occur to address and support these neglected populations.

THE UNVOICED EXPERIENCE

It is normal for all children to delay disclosure, deny being sexually abused, or recant their story of victimization after initial disclosure, and researchers

often wrongly view disclosure as a discrete, one-time event. In reality, survivors often reveal pieces of their experience over time so they can determine trustworthy listeners (Easton et al., 2014). Many survivors struggle to disclose for fear of interpersonal and societal blame for their abuse experience; however, by the time survivors reach adulthood, women have received scripts inviting emotionality and vulnerability, while men are trained in emotional repression (Price-Robertson, 2012). For these reasons and more, only one in four male survivors disclose their childhood abuse to anyone (Easton et al., 2014).

Constrictions in Gender Socialization

The most significant barrier male survivors encounter that prevents abuse disclosure, processing, and help-seeking behavior is the socialization of their masculinity. Adult heterosexual male gender scripts, or discriminating expectations for gendered behavior, teach that “real” men are unemotional, stoic, physically strong, homophobic, sexual initiators, powerful, individualistic, and self-sufficient (Davies & Rogers, 2006; Price-Robertson, 2012). According to Stephanie Pappas of the American Psychological Association (APA), the male script of stoicism can lead to John Henryism, which is “a high-effort method of coping that involves striving hard in the face of prolonged stress and discrimination” (2019). This is a learned behavior. When boys and girls are children, they have minimal differences in emotional displays (Pappas, 2019). However, perhaps it is statements like “boys don’t cry” and “man up” that teach the adult male gender script; many men report hearing these statements from parents, coaches, teachers, and friends when their behavior contradicted these male scripts. The expectation to emotionally repress, as well as other aspects of male socialization, “has been identified as a major contributing factor to their [male survivors] choice to remain silent” or to not disclose their abuse histories (Payne et al., 2014).

It is true that male survivors rarely self-identify as “victims” because of the societal expectation that they should be physically strong, capable of defending themselves, and able to escape danger (Crete & Singh, 2015). Davies and Rogers (2006) cite a survey asking college students to assign blame to characters in a rape scenario. In the scenario, the victim is jogging in the countryside when he or she is raped, and the victim submits to the assault without fighting back. Some research indicates all rape victims who do not resist are more likely to be blamed for the rape than victims who resist their attacker. Incidentally, participants did not assign women blame when they did not resist their attacker, but they did assign blame to male victims who responded in the same way. In other words, participants expected male victims to protect themselves and

blamed them if they did not try. On the other hand, participants were more likely to blame women for being careless in their choice to run alone (Davies & Rogers, 2006).

However, the Davies and Rogers (2006) study lacks recency; it paints the picture for traditional heterosexual male norms, which have existed for thousands of years and continue to influence the twenty-first century. If twenty-first century men are expected to be physically strong and capable of fighting back, it reinforces the ideology that *not* doing so is a choice. If it is a choice for a male to submit to sexual violence, then society could conclude that victims may want it. This line of thinking must be eradicated to protect male survivors of sexual trauma, particularly those who are homosexual.

Homosexuality and Disclosure

The fear of homosexuality among men presents a compelling barrier when seeking treatment. Many male survivors who self-identify as heterosexual express “an intense fear that their sexual orientation would be questioned if they were to disclose being abused by a male perpetrator” (Easton et al., 2014). As a participant in the 2014 study states, this is because, “There is some question in people’s mind that the victim might be gay or wanted the incident to happen” (Easton et al., 2014). Another participant explained that, when a male perpetrator sexually abuses a male child, it is “problematic ... because it tends to be a societal statement about a person’s manhood and sexual orientation. That is, gay sex = bad. Abuse = bad. Gay abuse = really bad” (Easton et al., 2014). The implication that male survivors of sexual violence are homosexual strongly disagree with male scripts of homophobia. Men are expected to be sexual initiators and repudiate “feminine” characteristics like emotionality, vulnerability, and passivity, especially sexual passivity (Price-Robertson, 2012). When two men engage in sexual behavior, regardless of consent, one man is viewed as the sexual initiator and the other is viewed as sexually submissive or passive. Submission and passivity are traits that align more with female scripts, and the common male perception is that homosexual men adhere to female scripts more than male scripts.

The stigma is even worse for male victims who identify as homosexual. In the study by Davies and Rogers (2006), homophobia was strongly correlated with blame toward gay male victims, but not toward heterosexual male victims when the perpetrator is male. Meanwhile, gay men and heterosexual women were not found to express negative views about gay male rape victims (Davies & Rogers, 2006). Consequently, it appears judgment from heterosexual men is the greatest concern for homosexual male survivors. According to societal

scripts, it also seems homosexual men lack the license to refuse sexual encounters like heterosexual men but are not expected to be sexual initiators like heterosexual men. Thus, homosexual men face minimization of their abuse, harsh criticism and blame from heterosexual men, and neglect from female survivor advocates.

Feminism and Disclosure

Current feminist ideology, while challenging and alleviating victim blame for women, is failing to recognize that sexual violence is also a problem for men. To start, feminist ideology challenges misogyny, a term rooted in the Ancient Greek word “*mīsoḡunīā*,” meaning “hatred towards women” (Srivastava et al., 2017). In other words, a misogynistic society extends certain privileges to men (especially White men) while permitting violence, harassment, and discrimination against women (Srivastava et al., 2017). In the context of sexual abuse, misogynistic ideology permits negative views of female victims, such as the perception that women are to blame for rape according to their choices in behavior and attire. A society’s legal system is a gauge by which one can measure a society’s adherence to misogynistic ideology, and historically, courts tend to rule in favor of male perpetrators over female survivors. The 2002 case of 17-year-old Lindsay Armstrong, who committed suicide following her trial in which defense attorneys forced her to hold up the G-string she was wearing the night of her rape, is a prime example of a legal system that supports rape myths (Cramb, 2002). While this case was tried in Scotland, the much more recent example of “Emily Doe” (Chanel Miller) in the United States documents a woman’s experience as a rape survivor fighting for the conviction of her perpetrator. In her letter to the court, Emily Doe writes:

After a physical assault, I was assaulted with questions designed to attack me, to say see, her facts don’t line up, she’s out of her mind, she’s practically an alcoholic, she probably wanted to hook up, he’s like an athlete right, they were both drunk, whatever, the hospital stuff she remembers is after the fact, why take it into account, Brock [the perpetrator] has a lot at stake so he’s having a really hard time right now. (Osborne, 2016, interjection added)

Within the context of an unsupportive legal system, feminist movements like #ThisIsNotConsent and #MeToo have been working to challenge victim-blaming scripts. In the #ThisIsNotConsent movement, women post photos of their underwear to emphasize that the characteristics of sexual violence (*e.g.*, the

assault location and time, the clothes worn by the victim, the relationship between the perpetrator and victim, *etc.*) do not justify sexual violence toward women. Meanwhile, the #MeToo Movement, founded in 2006, has risen to popularity on Twitter, accumulating 19 million tags in 2018 (Pew Research Center, 2018). Today, #MeToo states it exists “to help survivors of sexual violence, particularly Black women and girls, and other young women of color” (MeToo, 2019). At least on the surface, both widely popular movements appear to exclude male survivors.

However, according to the Davies and Rogers study, the attacker of a male victim was considered less guilty and was assigned a lesser prison sentence compared to the attacker of a female victim (2006). In fact, the majority of men wait an average of 21 years after the time of their abuse to disclose and 28 years to have an in-depth conversation about their abuse, despite the considerable day-to-day distress they may experience (Easton et al., 2014).

Even the World Health Organization (2019a) fails to acknowledge that sexual violence is an issue for men. *Figures 1 and 2* are from two of WHO’s main pages from September 2019. On the Sexual and Reproductive Health page, WHO describes sexual violence as a serious health problem “with both short- and long-term consequences on *women’s* physical, mental, and sexual reproductive health” (2019a, emphasis added; *Figure 1*). There is no mention of male survivors, and below the description, WHO cites sources based on the experiences of female survivors.

Sexual violence



Sexual violence is a serious public health and human rights problem with both short- and long-term consequences on women’s physical, mental, and sexual and reproductive health. Whether sexual violence occurs in the context of an intimate partnership, within the larger family or community structure, or during times of conflict, it is a deeply violating and painful experience for the survivor.

Preventing intimate partner and sexual violence against women

Taking action and generating evidence, 2010, 94 pages

Preventing intimate partner and sexual violence against women: taking action and generating evidence

WHO scales up intimate partner violence and sexual violence prevention activities.

Sexual violence (Chapter 6)

World report on violence and health, 2002.

Figure 1: WHO’s Sexual Violence page.

On WHO’s Violence and Injury Prevention (*Figure 2*) page, “intimate partner and sexual violence” is followed by what appears to be a qualifier, “(vio-

lence against women)” (2019b). This time, the description mentions that men “can also be victims,” but the qualifier in the title elevates the importance of violence against women as superior to that of men. Furthermore, neither page includes a picture of a man. If users glance quickly at both pages and only see the page titles and photos, they receive the message that sexual violence is solely an issue for women, and prevention is only a concern for female survivors. When a world-renowned website fails to include and address sexual violence as an issue for all victims, the world’s population will likely follow; if male victimization is not considered an issue, then it does not appear to require treatment.

Violence and Injury Prevention

Intimate partner and sexual violence (violence against women)



UN Photos/Tobin Jones

Intimate partner and sexual violence can result in short- and long-term physical, sexual and reproductive, and mental health problems. Although males can also be victims, females are disproportionately affected. Prevention strategies include:

- reducing childhood exposures to violence
- teaching safe and healthy relationship skills
- strengthening economic support for families
- challenging social norms that promote male authority over women
- offering bystander empowerment and education
- eliminating gender inequalities in employment and education
- creating protective environments

In addition patient-centred medical care, therapeutic interventions, housing programmes and legal services can reduce the negative consequences experienced by survivors.

Figure 2: WHO’s Violence and Injury Prevention page.

Female Perpetrators and Disclosure

When perpetrators are female, male survivors are sensitive to criticism they expect to receive, especially from other men. Boys are socialized to be sexual initiators; the older a male child becomes, the more pressure to take advantage of sexual opportunities increases. It is more acceptable for a woman to deny sexual access to a man than for a man to deny sexual access to a woman (Davies and Rogers, 2006). In fact, one participant in the Easton et al. study explained, “People have an attitude that boys should consider it a victory if a woman lures them into sex...” (2014). Furthermore, a common belief surviving the turn of the century is that a woman cannot physically force a man to have sex. Consequently, men fear societal minimization, normalization, and even promotion of their abuse by female perpetrators; and, men especially fear judgment from other men, who often endorse traditional views of masculinity and sexual initiation more than women (Davies and Rogers, 2006).

Victim-to-Offender Ideology and Disclosure

Another barrier to male survivor abuse disclosure is the fear of “victim-to-offender” ideology, the idea that male survivors will naturally become perpetrators in adulthood (Price-Robertson, 2012). This ideology is internationally reflected in media, popular culture, literature of child abuse prevention organizations and programs, and government reports. It is a real concern for male survivors who are also fathers; they may fear that, upon their disclosure, family, friends, and strangers will wonder if they are perpetrators against their children. Male survivors who are fathers are incredibly aware of how easily an adult can violate a child’s boundaries, and many fear they will lose control, act impulsively, and pass on their trauma. Consequently, many survivor fathers report interpersonal stress with their children. They report discomfort with touching, displaying affection, or interacting alone with their children. Others feel heightened anxiety when interacting with their children and fear their anxiety will evoke suspicion from others. Some male survivors are so fearful of becoming a perpetrator that it influences their decision to not have children. This is tragic, especially since research supports that men enjoy caring for their children as much as women do (Pappas, 2019). Other male survivors wish to avoid confronting their childhood trauma and fear having a child will force them to do so.

“Victim-to-offender” is an evidence-based fear for victims of CSA. McGrath, Nilsen, and Kerley (2011) completed a systematic review to determine the likelihood of childhood sexual assault victims becoming juvenile and adult offenders. The team explains, “. . .not all victims will become delinquents. Nevertheless, their chances are greater than for those who are not abused as children.” Victims of CSA have higher rates of violence as children, a higher risk for committing a serious sexual offense during adolescence, and a higher rate of arrest as adults (McGrath et al., 2011). However, this type of literature may lead survivors to feel an increased sense of powerlessness; not only were they unable to control their abuse experiences, but now, as adults, they may not be able to control their futures. Perhaps it is important to note victims of non-sexual abuse are also more likely to be arrested as adults and charged with a crime than individuals who have not experienced abuse (McGrath et al., 2011). Victims of CSA may feel relieved to know their experiences of abuse do not make their risks for perpetration unique.

LIMITATIONS IN TREATMENT AND RESEARCH

It is estimated that research, help, and support for male survivors is still more than 20 years behind resources for female victims because there is limited

clinical understanding of male survivor experiences (Davies & Rogers, 2006). Payne et al. (2014) argue many researchers assess the demographics of their participants but fail to make connections between abuse and demographic variables. For example, men are more likely to successfully complete suicide than women, especially men of color (Pappas, 2019). Race and ethnicity are critical variables many researchers fail to assess. Payne et al. (2014) note considerable variations in abuse coping experiences among Black, Latino, and White men.

The variations noted by Payne et al. emphasize the importance of research in treatment from professionals. The term “professionals” here summarizes a variety of services, such as individual therapy from a mental health professional or leaders of therapy and support groups. For example, based on Payne et al.’s findings, a White male survivor may benefit from therapy addressing cognitive distortions to reverse feelings of low self-esteem and self-hatred (56% of White men surveyed reported this theme), and guilt, regret, and shame (24% reported). Meanwhile, Latino men may benefit from treatment that teaches coping mechanisms for anger (52% reported), addresses anxiety symptoms like hypervigilance (46% reported anxiety, 60% reported hypervigilance), and works to rectify sexual identity confusion (42% reported). Professionals may appreciate knowing Latino men typically find it easier to discuss their emotional and psychological issues than White and Black male survivors; likewise, it can help professionals understand the need to have more patience with White and Black male survivors. Finally, according to the survey’s findings, Black men may benefit from treatment that replaces unhealthy coping mechanisms (*e.g.*, substance abuse, hyper-sexuality) with healthy coping mechanisms, especially for survivors who experience a combination of John Henryism and systemic racism (Payne et al., 2014; Pappas, 2019). Understanding this unhealthy self-medication for psychological distress may help professionals understand why their client does not appear to have very many present-day struggles concerning their history of abuse (Payne et al., 2014).

This is not to say professionals can assume the characteristics of a survivor’s experience based on the survivor’s race or ethnicity. Rather, it highlights evidence-based commonalities of experience and invites continued study. Researchers have gaps to fill concerning diversity of male survivors because many subpopulations exist under the umbrella of male survivors of sexual abuse. In addition to men of color and homosexual survivors, more research can be done in abuse experience for men who are in the military, who have been diagnosed with human immunodeficiency virus (HIV), who participate in religious institutions, and who identify as LGBTQ+. According to Pappas and the APA, “Sexual minorities or gender-nonconforming boys and men may face

strained family bonds or even familial rejection” (2019). This, in addition to one’s victimhood, can be detrimental to one’s mental health; perhaps therapists should be trained to employ family therapy for these populations. More research in these areas will increase the quality and effectiveness of services for male survivors of sexual violence, who are currently placed on waiting lists just to receive treatments targeted for female survivors (Gagnier, Collin-Vézina, & La Sablonnière-Griffin, 2017). Furthermore, professionals who use research to help survivors cope with their trauma may obtain increased funding for existing services and the creation of improved evidence-based treatments (Gagnier et al., 2017).

There is an especially great need for evidence-based research in behavioral intervention. One of the main assumptions of the victim-to-offender ideology is that criminal behavior is learned. If violence is learned, it can be unlearned and rehabilitated. Humans are more likely to repeat modeled behavior if they perceive the observed behavior can solve a problem. This is where treatment programs can better serve male populations, especially when they are socialized to be problem-solvers (McGrath et al., 2011). If therapists can help CSA clients foresee the consequences of delinquent behaviors while introducing healthier coping behaviors, perhaps male victims can overcome whatever tendency they may have to externalize their pain harmfully. This can even be an important distinction between victimhood and survivorhood; victims become survivors when they can choose a better way of life. Therapists can reassure clients that women are also expected to embody many of the same positive aspects of masculinity, like self-sacrifice and strong morals; challenging gender scripts may alleviate some pressures male survivors feel (Pappas, 2019). More research needs to be done on these propositions, but, as Price-Robertson writes, “The route from victim to offender is certainly not automatic, and, indeed, not even likely” (2012, p. 133). Treatment should empower victims to have a sense of agency to eliminate fears of revictimization and perpetration.

When male survivors of sexual violence decide to seek help—finding the help they need—many report feeling significant relief from symptomatology, especially feelings of isolation (Gagnier et al., 2017). Researchers note that support services are often “pivotal” in their participants’ recovery, especially when male survivors look for “a deeper meaning behind their history of abuse” (Gagnier et al., 2017). Therapists should spend time reflecting upon their own gendered scripts and recognize how these scripts may influence their therapeutic techniques. A therapist should take extra care to identify any of their characteristics similar to the victim’s perpetrator. For example, if a male therapist is interacting with a male client who was sexually violated by a male perpetrator,

the therapist should be prepared to spend extra time building and maintaining trust in their therapeutic alliance; it may be a significant challenge for the client to trust another man. However, if trust is achieved, it can provide deep healing and restore hope for the client.

CONCLUSION

All survivors have a right to voice experiences of violence, and society has an obligation to address sexual violence as an issue for all people. Male survivors face unique barriers for abuse disclosure, including socialization scripts requiring them to be unemotional, stoic, and self-sufficient. These scripts reduce help-seeking behavior in men and increase a victim's sense of fault after victimization. This guilt is not imagined, and some members in society assume men should be capable of defending themselves, especially from female perpetrators. Homophobia can further increase a heterosexual male's fear of disclosure; for homosexual men, many assume sexual violence was warranted or welcomed, and otherwise not a problem.

While the third wave of feminism invites the voices of female survivors, male survivors are not recognized as a population in need of treatment, even by world-renowned institutions like WHO. In fact, male survivors often face evidence-based research communicating they are likely to become perpetrators themselves. This "victim-to-offender" ideology scares away many survivors who want to disclose but who also have or want to have children. In this way and others, male survivors not only live with a sense of powerlessness, but also the fear they have no control over their future behavior.

If the world is going to recognize the experiences of male survivors, researchers must conduct studies to empirically support that victimization is an issue for men. The expansion of research should address prevalence and incidence rates, document individual experiences, record demographic variabilities in experience, and test treatment theories. The more researchers learn about the male survivor experience, the stronger treatments will become for male survivors. The more treatments recognize and address the differences in abuse experience based on sex, sexual orientation, race, and ethnicity, the closer society can move toward individualized treatment for all. The longer we fail to recognize and address all experiences of sexual violence, the longer we will communicate that some experiences are more worthwhile causes for treatment than others. All survivors of sexual abuse have the right to a voice, and a society of silent sufferers is a barrier for all.

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DELIMITING THE EXPRESSIVE FUNCTION OF PUNISHMENT

Lane Rogers

Abstract

This text seeks to explore the proper role and necessary limits of the expressive function of punishment—or, the capability of punishment to administer and enforce an attitude toward the punished party—given the necessity of forgiveness in society. It argues that punishment plays a central role in the institutionalization of resentment, which works contrary to individuals' ability to forgive, and explores novel ways to reconcile these two mutually exclusive legal elements. The primary documents analyzed to explore this unique issue are "Forgiveness and Resentment" by Jeffrie Murphy and "The Expressive Function of Punishment" by Joel Feinberg. By synthesizing these two texts, I attempt to form an original theory about the proper interaction of forgiveness and institutional punishment and where the essential limits of each meet the other.

Two selections that discuss how attitudes can and should affect punishment, or the way we should understand punishment, are Jeffrie Murphy's "Forgiveness and Resentment" and Joel Feinberg's "The Expressive Function of Punishment." In "Forgiveness and Resentment," Murphy suggests that, contrary to popular belief, forgiveness is not a universal virtue and can even function as a vice when misused. In "The Expressive Function of Punishment," Feinberg posits that the recognition of punishment's ability to express attitudes is essential to distinguishing punishments from their trivial relative, penalties. The express purpose of punishment as an institution and the administration of appropriate penalties should encompass the expression of attitudes only to the degree that those attitudes do not institutionalize resentment, which is to be reserved for the actions and expressions of individuals, particularly those who have been wronged.

In "Forgiveness and Resentment," Murphy's thesis is that forgiveness is not always a virtue, and the separation of an individual from their transgressions is

the key to determining under what circumstances it becomes a vice. Murphy seeks to establish the claim that resentment, while easily capable of getting out of hand, is an appropriate response to being wronged and is indicative of a healthy sense of respect for both oneself and others. Resentment, Murphy observes, “is a good thing, for it is essentially tied to a non-controversially good thing—self-respect” (Murphy 656). To put it another way, a lack of resentment when wronged indicates a lacking fundamental grasp on one’s self-value rather than an excessive moral stature. Murphy’s thesis is stated most clearly in this passage:

If I count morally as much as anyone else (as I surely do), a failure to resent moral injuries done to me is a failure to care about the moral value incarnate in my own person (that I am, in Kantian language, an end in myself) and thus a failure to care about the very rules of morality. (Murphy 657)

In Murphy’s view, failure to experience resentment does not simply indicate a lack of self-respect; it is indicative of a more fundamental lack of respect for morality itself.

Murphy is not under the illusion that resentment is never harmful, however. He admits that resentment, when left unopposed, can bring about unparalleled havoc and destruction in one’s life. In fact, he concedes that this is one reason why forgiveness is a necessity:

Deep as these hurts of intimacy may be, however, what would be the consequence of never forgiving any of them? Surely it would be this: the impossibility of ever having the kind of intimate relationships that are one of the crowning delights of human existence. The person who cannot forgive is the person who cannot have friends or lovers. (Murphy 656)

Necessary as it is, he then notes that forswearing resentment because of its destructive capabilities still cannot be a just motivation for forgiveness because of its ultimately selfish nature. He claims that to prioritize intimate relationships over one’s own human dignity and status of equality to others would be a mistake. He asserts, “Forgiveness may indeed restore relationships, but to seek restoration at all cost—even at the cost of one’s very human dignity—can hardly be a virtue” (Murphy 657).

Furthermore, one of Murphy’s aims is to distinguish forgiveness from concepts that are regularly mislabeled as forgiveness. Murphy concludes that two things commonly named forgiveness, excuse and justification, cannot actually

equate to forgiveness because they lack the necessary prerequisite for forgiveness in the first place: moral indignation over having been wronged. In Murphy's words, "Resentment—and thus forgiveness—is directed toward *responsible wrongdoing*; and therefore, if forgiveness and resentment are to have an arena, it must be where such wrongdoing remains intact—*i.e.*, neither excused nor justified" (Murphy 658). He continues to carefully distinguish the concept of forgiveness from that of mercy in two ways: permanence and dependence on relation. Mercy is permanent, whereas forgiveness is not. The permanence of merciful action is directly observable, while forgiveness is an ongoing attitude toward life and one's own resentment rather than a one-time action. The other thing that separates mercy from forgiveness is the former's disregard for identity. This is exemplified by Murphy through the person who thinks they have forgiven someone but actually has not or even decides to revoke their previously offered forgiveness. Forgiveness can also be offered to the dead, where mercy is obviously redundant.

The other point Murphy makes is that mercy is independent of identity; anyone can offer any other person mercy, and it would not be questioned. One's ability to offer forgiveness, however, is completely contingent upon the moral positioning one has in relationship to others. Indeed, it would be very strange for someone to offer a person forgiveness regarding a transgression committed against an additional third party. Society seems to have some conception that forgiveness is a personal act that can only take place between the two parties involved in the moral offense. To put it another way, Murphy says, "To use a legal term, I do not have standing to resent or forgive you unless I have myself been the victim of your wrongdoing" (Murphy 658).

In order to finally conclude what forgiveness is, Murphy determines that forgiveness is not only the overcoming of one's resentment, because this sometimes happens by pure accident through forgetfulness. Murphy states that forgiveness is an action that must be taken with intent. This leads him finally to a serviceable definition for what forgiveness actually is: "Forgiveness is not the overcoming of resentment *simpliciter*; it is rather this: forswearing resentment on moral grounds" (Murphy 660).

After properly delineating what qualifies as forgiveness, Murphy goes on to facilitate an inquiry into when it constitutes a virtue. Consistent with his previous statements, Murphy claims forgiveness can only be virtuous when reconciled with recognition of one's self as fundamentally deserving of respect and moral consideration. The key for Murphy to determine when forgiveness is a virtue is whether one can separate the offending agent from his or her past offenses. According to Murphy, this procedure can come about as a result of

several different methods, including the application of sufficient suffering or humiliation—what he refers to as “old times’ sake” (where the offender has changed enough that it is no longer relevant to attribute them with the action) or repentance offered by the offender. Murphy states, “Forgiveness is acceptable only in cases where it is consistent with self-respect, respect for others as responsible moral agents, and allegiance to the rules of morality (*i.e.*, forgiveness must not involve complicity or acquiescence in wrongdoing)” (Murphy 657). He once again refers to the consequences of offering forgiveness under inappropriate circumstances.

Murphy proceeds to advance the corollary claim that only “to the extent that the agent is separated from his evil act, forgiveness of him is possible without a tacit approval of his evil act” (Murphy 660). But, why is any of this speculation about the virtues and vices of individual forgiveness relevant to the law? One reason could be that if it is true the law institutionalizes resentment (as Murphy certainly believes it does), then certainly to the same degree, “the law has a reason to go easy on those persons who have been forgiven or for whom forgiveness is appropriate” (Murphy 664).

That all certainly seems reasonable, but does the law in fact institutionalize resentment? To answer this question, one must consider the other selection, “The Expressive Function of Punishment” by Joel Feinberg. In this piece, Feinberg makes the argument that an understanding of the component of punishment that expresses the collective disapproval and even vindictive resentment of the community is essential to understanding the distinction between penalties and punishments. He establishes his claim by saying that one can understand penalties “as mere ‘price-tags’ attached to certain types of behavior that are generally undesirable, so that only those with especially strong motivation will be willing to pay the price,” while on the other hand, “punishment is a conventional device for the expression of attitudes of resentment and indignation, and of judgments of disapproval and reprobation, either on the part of the punishing authority himself or of those ‘in whose name’ the punishment is inflicted” (Feinberg 630). In other words, Feinberg’s central claim is that punishment—as opposed to penalty—is essentially in the business of doing just what Murphy believed it did: institutionalizing attitudes of resentment toward offenders. Feinberg observes that the way punishment is able to accomplish expression of sentiments of disapproval or condemnation for an action is simply that society determines the punishments that are appropriate for different levels of disapproval of an action. Feinberg explains that, “To say that the very physical treatment itself expresses condemnation is to say simply that certain forms of hard treatment have become the conventional symbols of public rep-

robation,” is no different fundamentally than saying, “champagne is the alcoholic beverage traditionally used in celebration of great events, or that black is the color of mourning” (Feinberg 631).

Feinberg also enumerates several other derivative purposes that spring from the original expressive function. He includes several varied expressive functions that the law can serve, such as authoritative disavowal and symbolic nonacquiescence. The value of such demonstrative properties becomes immediately evident through the examples he produces. He describes the value of authoritative disavowal as the ability of a governing agency to separate itself from the actions of a rogue agent, and likewise describes the value of symbolic nonacquiescence by profoundly stating, “to whatever extent a political act is done ‘in one’s name,’ to that extent one is responsible for it” (Feinberg 633). He claims these extraneous purposes institutionalize resentment to varying degrees, but the major point that Feinberg is trying to make is that these functions of punishment make absolutely no sense without recognition of the expressive function.

After understanding the function that punishment plays in expressing the collective sentiments held by a community, one can understand more clearly how these two pieces fit together. As Murphy stated, if punishment has a part in institutionalizing resentment (which according to Feinberg, it certainly does), then those who have made a successful effort to separate their present identity from their past transgressions deserve a reprieve from that expressive function. Furthermore, if what Murphy claims about the nature of forgiveness and resentment is true—that only those who have actually been wronged can forswear that resentment—then the argument stands that, while the community has a right to express sentiments of disapproval about a certain criminal action, unless the entire community has been wronged in some tangible way, a community has no right to establish and maintain a sentiment that only a subordinate wronged party has the power to alleviate.

So, why not just do away with punishment’s expressive capability, then? After all, even Feinberg admits, “Public condemnation, whether avowed through the stigmatizing symbolism of punishment or unavowed but clearly discernible (mere ‘punitive intent’), can greatly magnify the suffering caused by its attendant mode of hard treatment,” and, “The reprobative symbolism of punishment is subject to attack not only as an independent source of suffering but as the vehicle of undeserved responsive attitudes and unfair judgments of blame” (Feinberg 637–638). He does not shy away from the proposed redundant and carelessly destructive qualities of imposing communal guilt on violators of the law. Feinberg addresses this kind of skeptic and states, “The condemnatory aspect of punishment does serve a socially useful purpose: it is precisely the

element in punishment that makes possible the performance of such symbolic functions as disavowal, nonacquiescence, vindication, and absolution” (Feinberg 638). In other words, the expressive functions of punishment is precisely what enables all of the socially beneficial derivative functions of punishment.

If this is true though, that the expressive function of punishment is still necessary because of its social utility (*e.g.*, the derivative purposes earlier discussed), then is there a way to reconcile these with the redemptive properties of forgiveness? What little discussion “Forgiveness and Resentment” does contain on the topic of whether parties have justifiable cause to feel indignation at wrongdoing not specifically applied *to them* explicitly states that without proper standing provided by having been wronged, one has no legitimate cause for which to express resentment. Thus, the question now becomes whether sentiments of disavowal can be separated from those other sentiments of proper resentment. It seems certain sentiments, such as those of authoritative disapproval, can be accomplished without the institutionalization of resentment because an expression of resentment is essentially not the same as an expression of disavowal. Just as a parent punishing a child does not necessarily resent the child for their actions, they may want to make it clear both to the child and the world that they have judged the actions of the former to be unacceptable in a way words cannot adequately express. In fact, a convincing argument can be made that attitudes of disapproval are implicit in all punishment. Retributivists and utilitarians, despite their fundamental disagreements of punishment’s ultimate justification, agree that the only reason punishment exists in the first place is because of actions that take place outside the domain society has determined acceptable.

Feinberg states in his thesis that punishment is the “fusion of vindictive resentment and reprobation.” It seems if we can accomplish a retention of the latter sentiment while reserving the former as the sole responsibility of the offended party, then we can preserve the necessary expressive functions of punishment while also incorporating the deeply redemptive benefits of forgiveness Murphy wrote about. In other words, punishment can still be used as a mechanism to express sentiments to the degree that those sentiments do not inherently institutionalize resentment itself, which is to be reserved for those who have legitimate standing to incorporate such an attitude into their actions. This system would preserve both means of expression implicit in Feinberg’s theory of punishment without sacrificing the powerful cathartic relationship between offensive and offended parties that Murphy describes. It is true that the role attitudes play within the context of legality and punishment is often complex and difficult to understand. But, if we are able to reconcile all of society’s no-

tions about what the role of attitudes should be—namely, that fixed attitudes of resentment should be extracted from legal operations such as punishment and reserved for individual interactions—we can create a far clearer, more comprehensive and functional concept of what punishment ought to be, and at the same time produce an environment that is both more convalescent to the recovery of those who have been wronged and conducive to the repentance of those who have done wrong.

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TLATOQUE TO CACIQUE: INDIGENOUS NOBILITY RECOGNITION AND INTEGRATION IN NEW SPAIN

Paige Lehman

Abstract

Native Nahuatl society stratified itself between nobles and non-nobles. A person's status as a member of the *pipiltin* or *macehualtin* determined their role in the tributary system, native religion, and political structure, and influenced both fashion and educational opportunities. The nobility had direct religious and civil control over the people they ruled, a system that the emperors based on war and tribute. After the Spanish conquest, nobility maintained authority by converting to Catholicism and finding roles as *caciques* in the *encomienda* system of New Spain. *Pipiltin* served in the Church and functioned as points of contact between the people and Spanish friars interested in studying native culture. Native social hierarchy continued to exist in New Spain and integrated with the Spanish through intermarriage and Hispanicization. The New Spanish legal system blended native concepts of land rights and Spanish courts through the *Juzgado General de Indios*, where nobility often communicated between the courts, Spaniards, and their native neighbors. In New Spain, noblemen were able to retain their control of lower classes by appeasing the Spanish and creating a niche role in the center of society and politics.

“These natives commonly had and still have (where the Indian lords have not been done away with) three supreme lords in each province. In some provinces, however, as in Tlaxcala and Tepeaca, there were four. Each of these lords had his recognized lordship and jurisdiction apart from the others....”

**Visiting Judge Don Alonso de Zorita, *Brief and Summary
Relations of the Lords of New Spain, 1553.***

When Spanish *conquistadors* arrived in Tenochtitlán in 1519, the native Aztec nobility had no certainty of what the future would hold for their people. These elites, unlike their emperor, Moctezuma II, recognized the threat and destruction Spaniards would bring to their lands because they had always done the same to the conquered people around them. To avoid this possibility, they fought against the Spaniards. The ensuing revolt, retreat, conquering, and

colonization would bring to life the worst fears of the nobility as their roles changed for the first time from conquerors to conquered. However, despite the complete overthrow of the Aztec Empire at the hands of the Spaniards, the indigenous Nahua nobility maintained much of their power. In part, this was due to the philosophical and political views of the Spanish Crown, but it also speaks to the dual pervasiveness and persuasiveness of the social and political elite classes.

Indigenous nobility in Mesoamerica sought a mutually beneficial relationship with the Spanish to ensure the survival of their lifestyle under colonial rule in New Spain. The indigenous nobility enjoyed special privileges and rights as upper-class citizens in both pre-contact society and New Spain, although they also had to follow more rigorous laws and traditions than the lower classes. This article highlights the structure and cultural significance of pre-conquest tribute systems, focusing on the role of noble classes within the law and politics of the Aztec state. From the time of the Spanish conquest onward, the Nahua nobility culturally mediated the transition of their subsidiary natives from their indigenous religion and tributary systems to Christianity and life under the Spanish Crown. Case studies of specific examples of noble families from the central valley highlight the exact roles played by nobility during colonization. Finally, this article explores the legal environment for indigenous nobility in New Spain and compares it with what existed in Mesoamerica before European contact. Indigenous noble classes from 1500 to 1600 saw radical societal change happen around them, and yet they continued to function relatively unchanged by adapting and exploiting the changes to religion, culture, and law for their own benefit.

WAR AND DOMINANCE: THE TRIBUTE SYSTEM OF THE AZTEC EMPIRE

Native Nahua society pre-conquest structured itself hierarchically in two broad social classes: nobles and non-nobles. The noble class of *pipiltin* were descendants of the rulers and heads of noble houses, and the larger mass of the non-noble peoples, *macehualtin*, contained groups such as slaves, simple craftsmen, merchants, warriors, *etc.*¹ Structured around the needs and desires of nobles, the economies of Aztec states focused on levels of taxation and tribute patterns that supported the lifestyles of the political elites who did not work

1 Connie Linda Gordon, "An Anthropo-Geographic View of an Economy: The Late Pre-Conquest Basin of Mexico" (PhD diss., Columbia University, 1980), 109.

for themselves, as well as provided sacrificial offerings to the gods.² Official tribute, then, inherently tied into social welfare and religion, but a separate secular trade network worked independently of noble influence and ever-present war politics.³ Nahua society under the Aztec Empire flourished and spread throughout the region via conquest, tribute collection, and the expansion of trade networks that followed.

Before European contact, regions conquered through war would provide tribute, similar to tax revenue, to the state that ruled over the regions. At the height of Aztec power and influence in the central valley of Mexico, the empire was called the Triple Alliance and was dominated by the three large city-states Tenochtitlán, Texcoco, and Teotihuacán. All three polities served under the rule of the emperor of Tenochtitlán, who in turn extended his control down the political hierarchy and across the Nahua people living within the areas controlled by the Aztec empire. Different cities and areas provided different forms and amounts of tribute to high nobility based on a variety of factors, such as distance, physical resources, and information about the warring conquest of that region. Judge Don Alonso de Zorita explains that the Aztec tribute system was vast: “In the provinces that were not subject to them ... the Lords ruled and had presented to them tributes of hand-sown lands, because this was the common and general way they had to pay tribute ... and since there were many people, there was much that was collected and gathered.”⁴ Conquering states cared less about the physical resources than the location and ease of conquest when determining tribute demands and would often punish resentful regions by demanding types and amounts of tribute that were not readily available.⁵ According to the Spanish colonial Judge in his report to the Council of the Indies in 1553, before the conquest, various types of tribute payers existed:

From what I have been able to learn, four kinds of people, comprising all the commoners, paid tribute. Tribute-payers of the one kind were called *teccaltec*; these people were attached to certain principals, and were subject to inferior lords called *tecteccuhtzin* . . . Tribute-payers of the second kind were called *calpullec* ... these were numerous, and included all who paid tribute to the supreme ruler . . . Tribute-Payers of a third kind were the

2 Gordon, “An Anthro-Geographic View of an Economy,” 140.

3 Gordon, 145.

4 “*En las provincias que no les eran sujetas... gobernaban los Señores y acudíanles con tributos de sementeras que les hacían, porque esta era la común y general manera que tenían de tributar... y cómo la gente era mucha, era mucho lo que se recogía y juntaba.*” “Breve relaciones de los Señores de la Nueva España,” *Documentos para la Historia de México* (Mexico: Imprenta de Francisco Díaz de León, 1891), 99.

5 Esteban José Fernández, “Gold and Tribute in Aztec Tlapa: An Ethnohistoric and Experimental Analysis” (PhD diss., University of Colorado, 2013), 20.

merchants . . . Tribute-payers of the fourth kind were called *tlalmaitec*, or *mayeqes*. They were peasants who lived on the lands of others. . . .⁶

Tribute could easily change to meet the needs of a growing post-classic period noble class and did not have to remain fixed for any specific amount of time. *Tlatoque* (high native nobility; sing, *tlatoani*) controlled the usage of tribute; they could dictate which *pipiltin*, or general nobility, and the more elite members of the *macehualtin*, or commoners, could find specialized roles in the collection and distribution of tribute.⁷ By controlling the tribute system, the *tlatoque* controlled the way of life for *macehualtin* in the empire.

The *calpixque*, or tribute collectors, could bargain with conquered regions for equivalent tribute provisions, creating a market and trade system even within the established tribute administration.⁸ Nahua society, especially under the Aztec Triple Alliance in post-classic times, remained based in agriculture, and Nahua dominance spread widely across Mesoamerica. Local farmers would supply food for their families and send staple grains to conquering cities as tribute, but they could also trade their surplus food with merchants in the area.⁹ Many other items, like household wares, clothing, and cooked foods were also sold at markets.

Large marketplaces served an important aspect of daily life for indigenous people. The markets of Mesoamerica were secular and independent from total control by the nobility, but they still conformed their administration to the legal and political rules of society. Nobles could manipulate the availability of certain elite items by passing laws regarding which classes could purchase and own goods like art, cotton, jewels, and special foods.¹⁰ In the public marketplace, commoners showed respect and gave priority to the nobility. *Figure 1* shows a nobleman purchasing goods from two sellers in the great market of Tlatelolco. The image exhibits various household goods laid out for purchase, including several types of pottery, food, and jewelry.



Figure 1: Nobleman in Tlatelolco Market. *Florentine Codex*, Book VIII, Folio 50V. This image is in the public domain.

It is widely disputed how the trade and market industry of Mesoamerica interacted with the imperial tribute system because not much evidence is available. Firsthand accounts from Spaniards do not entwine the trade and tribute systems, and very little remains from indigenous sources. Anthropologists and archaeologists like Connie Linda Gordon and Frances Mary Frei Berdan have attempted to piece together the structure based on what is known. Every class had access to the large markets of Nahua society and relied on their presence for buying items they could not produce locally.¹¹ Hernan Cortés himself wrote about the great marketplaces that he encountered:

There is a market in this city, in which, every day, above thirty thousand people sell and buy, not to mention many other small markets in different parts of the city. This market contains everything in which they trade, not only provisions but also clothing and shoes. There are jewelry shops for gold, and silver, and precious stones and other finery of feather work, as well arranged as any to be found in any of the squares or market places of the world....¹²

11 De Lucia, "Domestic Economies and Regional Transition," 80–84.

Nevertheless, the royal nobility did not run the official trading operations because they could survive on their naturally earned tribute; so, this system of local and long-distance trade existed through a group of professional merchants and traders from a middle class between the *pipiltin* and the *macehualtin*.¹³ These merchants worked within their own city-states and across multiple ports of trade throughout the empire. The merchants, or *pochtecatl*, became instrumental in trading the elite goods created in rural areas and bringing the luxury items into the cities for the nobility.¹⁴ Professional merchants worked outside the traditional social hierarchy because they accumulated their own wealth without receiving tribute while winning the esteem of nobles without joining their ranks. Merchants did not exist based on any hereditary claims, “not by lineage,”¹⁵ and thus served as a class between commoners and noblemen in pre-conquest society.

Inside conquered regions, the nobility and higher social classes managed the production of tribute with little oversight. The Aztec Empire remained relatively decentralized during its existence, and the imperial law allowed local *tlatoque* to rule over their own people.¹⁶ The Aztec tribute system required individual houses to produce specific quantities of goods for annual tributes.¹⁷ The *Codex Mendoza* lists the tribute types and amounts required from various towns in the Aztec Empire described in Nahuatl¹⁸ numbers. Along the edges of the two folios in *Figures 2* and *3* are town name glyphs, and the larger items describe what the conquered towns owe the empire in tribute, such as jade beads, 20 jaguar skins, and 80 birds.



Figures 2–3: Lists of tribute provided to the Triple Alliance. *Codex Mendoza*, Folios 48V and 49R. These images are in the public domain.

The role of nobility in the collection of these goods depended on their type. The *pipiltin* oversaw the mines required for obtaining gold and other minerals but could manage the collection of grains and agrarian resources less directly.¹⁹ The most elite nobles disproportionately lived in the largest cities of the post-classic society.²⁰ This allowed local and lesser nobility to interact with working classes, thus stratifying between levels of the *pipiltin*.

In the eastern section of the Aztec Empire, the region of Texcoco dominated tribute and trade. Before the formation of the Triple Alliance, the city-state controlled up to half a million subjects through a hegemonic ruling style.²¹ Texcocoans were largely concerned with land ownership because of their ancestral journey into the Valley of Mexico, and they based much of their legal system on formal codes instead of case law.²² Formal codes are strict, unyielding documents that describe exactly what is legal and what is not according to the

19 See Fernández for information on the tributary system as it pertained to metal and Gordon for agricultural tribute. Fernández, “Gold and Tribute in Aztec Tlaxcala,” 25. Gordon, “An Anthro-Geographic View of an Economy,” 145.

20 Gordon, “An Anthro-Geographic View of an Economy,” 4. De Lucia, “Domestic Economies and Regional Transition,” 87.

rulers, while case law allows for interpretation and change over time. According to Fray Diego Durán, “there was great rigor in their execution;”²³ Texcoco and other indigenous states enforced their laws strictly and unwaveringly. Under the Triple Alliance, Texcoco nobility controlled 40% of the tribute taken in by the empire.

As illustrated in *Figure 4*, Texcocoan rulers included local nobility when deciding matters of ruling the city-state. Pictured in the chart are Emperor Nezahualcoyotl of Texcoco, along with his heir, and 14 noble house rulers with names and homes listed around the edge of the document.²⁴ Texcoco had a unique and highly stratified tribute system that placed lesser lords under the influence of wealthier and more powerful ones. The emperor of Texcoco directly oversaw the towns of his most trusted *tlatoque*, said to belong in the “*recámara del rey*”²⁵ (King’s Chamber), who in turn controlled other, lesser towns in the empire. Charles Gibson, Jerome Offner, and other scholars disagree on exactly which of these towns are of the *recámara* because the names are missing from the chart and would have changed over time.²⁶ While the exact towns of these noblemen are unknown, it is still evident from their placement in proximity to

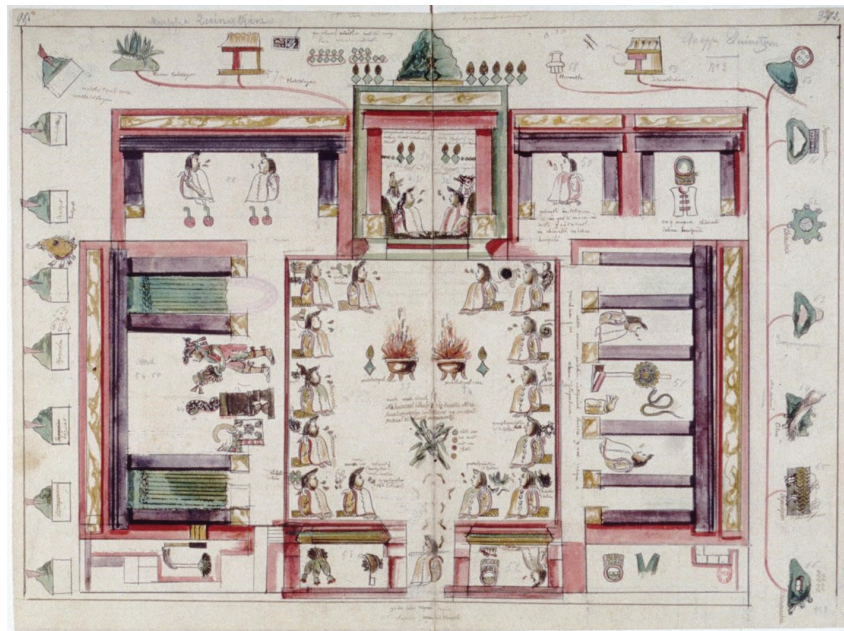


Figure 4: Depiction of Texcocoan royalty and nobility seated in the royal courtyard. *Mapa Quinatzin*, Leaf 2. This image is in the public domain.

24 Offner, 242.

25 Offner, 245.

26 Offner, 261.

the emperor and their style of dress that all the men drawn are of high nobility from Texcoco.

Nobility, like those pictured in *Figure 4*, controlled life for the lower classes through their official duties as politicians, masters of war, and overseers. They controlled the collection and usage of tribute aggregated from across the empire with the help of specialized tribute collectors. The distinct class of merchants traded with farmers and artisans to sell goods in large, central markets. The marketplaces operated outside of politics and held a large level of cultural importance to the Nahua as a space where all classes could interact within social and political conventions.

CONTROL AND CONVERSION: CULTURAL CHANGES AT SPANISH CONQUEST

When Cortés and his *conquistadors* took Tenochtitlán in the 16th century, they overthrew Aztec ruler Moctezuma II and his entire governmental system. Although Moctezuma died in the struggle,²⁷ the Spaniards treated his children with the respect and dignity afforded to any conquered European polity, which was significantly better than what they afforded other indigenous Mesoamericans.²⁸ The conquering government never questioned the children's authority and noble legitimacy during the post-conquest cultural transition, and many of them exploited this advantage.

Moctezuma's daughters, under the care of Cortés, all married Spaniards after the conquest. Doña Isabel, the only known legitimate daughter of the late emperor, married five times in her life, including three Christian marriages to Spanish *conquistadors* and cultural elites.²⁹ She eagerly supported the Catholic Church later in life as a way to exercise control over other natives and set an example of good Christianity. Isabel served as an exemplar for a perfectly Hispanicized native noblewoman: devout, the mother of *mestizo* children, and still connected to her native culture and people through her estates.³⁰ Moctezuma's other daughter, who lived through the entire conquest, Doña Leonor, similarly earned property and further titles through her marriages.³¹ Surviving

27 It is unknown exactly how Moctezuma died due to conflicting accounts from Nahua and Spanish sources: both blame the other party. However, it is certain he was killed during the first retreat from Tenochtitlán. Ann Prather Hollingsworth, "Pedro de Moctezuma and his Descendants, 1521–1718" (PhD diss., Denton, North Texas State University, 1980), 16.

28 Hollingsworth, "Pedro de Moctezuma and his Descendants, 1521–1718," 2.

29 Hollingsworth, 17.

30 Donald E. Chipman, *Moctezuma's Children: Aztec royalty under Spanish rule, 1520–1700* (Austin: University of Texas Press, 2005), 59.

31 Hollingsworth, "Pedro de Moctezuma and his Descendants," 18–20.

pre-conquest documents, like *Codex Cozcatzin*, show us that the women in an emperor's family, like Isabel and Leonor, held political power. *Figure 5* shows Isabel, identified by her name glyph of a diadem and by her Christian name in the Spanish text above, seated in a place of honor and speaking to her father with her brother, Pedro, behind her. The reverence given to the royal family members during the conquest and creation of New Spain is a continuation of indigenous nobility tradition.



Figure 5: Doña Isabel and Don Pedro meet with their father pre-conquest *Codex Cozcatzin*, Folio 1V. This image is in the public domain.

The surviving sons of Moctezuma, like their sisters, also continued to hold their unique positions as royalty in the new society. Martín Cortés Nezahuatlacotzin traveled with Cortés to Spain, where the king heralded him and granted a coat of arms for his family in Spain.³² His fraternal half-brother, Pedro de Moctezuma Tlacahuepan, kept control of his mother's inheritance and turned it into an *encomienda*.³³ The continuing generations of family members for Doña Isabel, Doña Leonor, and Don Pedro secured their power and influence through ownership of three *encomiendas* in New Spain and increased Hispanization of the family. The Crown granted a Pedro de Moctezuma descendant

³² Hollingsworth, 19.

³³ Hollingsworth, 20. An *encomienda*, discussed later in the article, was a standing grant from the Spanish Crown to collect tribute and labor from indigenous workers. As is the case with Don Pedro, most *encomiendas* covered agrarian labor, which was the most common form of tribute in both Nahua society and New Spain.

of the 17th century the title *Conde* (later, *Duque*) *de Moctezuma de Tultengo*, recognized by both Spain and Mexico as a house of nobility.³⁴ Don Pedro, his siblings, and his descendants received stipends from the Spanish Crown and pursued legal battles in the Spanish courts system to gain more control of the estate that once belonged to Moctezuma.³⁵ They successfully gained money and land over many generations and continued a tradition of power and high nobility in the central Mexico valley.

Lower-ranked nobles, the *tlatoque* and *pipiltin*, also exploited the changing culture of New Spain in similar ways. As explained in Fray Bernadino de Sahagún's *Florentine Codex*, native nobles held a prominent role in religious life and rituals.³⁶ The Nahuatl words for order and royal land share the same root, *tecpan*.³⁷ Pre-conquest, nobility held rituals in the temples built into their own homes, thus tying their right to rule to the land and to the gods.³⁸ In order to retain their religious authority, nobles in New Spain sought positions in the Catholic Church.³⁹ They did not serve as priests as they had in the indigenous church, because *peninsulares*⁴⁰ alone retained that right, but served as assistants and chapel keepers instead. These nobles often still held rituals and celebrations for the old gods, even inside the new chapels and churches,⁴¹ which would put them in conflict with the Spanish Church. Friars acting under the Inquisition persecuted baptized natives still practicing their old religion.

Since nobles still led the old religions and exhibited social control of natives, friars sought out nobles for heresy and idolatry more than they sought out those in the lower classes. The criminal prosecution of Don Carlos Ometochtzin Chichimecateatl of Texcoco is one of many such cases but was the only one to end in a death sentence for the crimes committed.⁴² The Inquisition sentenced Don Carlos using both native testimony against him and his own

34 Chipman, *Moctezuma's Children*, 129.

35 Hollingsworth, "Pedro de Moctezuma and his Descendants," 48.

36 Fray Bernadino de Sahagún, *Florentine Codex: General history of the things of New Spain* (Salt Lake City: University of Utah Press, 2012).

37 Alonso de Molina, *Vocabulario en Lengua Castellana y Mexicana*, 1571 (Madrid: *Biblioteca Virtual Universal*, 2003).

38 Alena Johnson, "Rewriting Native Imperial History in New Spain: The Texcocan Dynasty" (PhD diss., University of New Mexico, 2015), 75.

39 John F. Chuchiak IV, "Surviving Maya Codices." (lecture, UHC 410: Honors Seminar on Mesoamerican Ethnohistory: Maya, Mixtec & Aztec Codices, Missouri State University, Springfield, MO, October 30, 2018).

40 *Peninsulares* are full-blooded Europeans born on the Iberian peninsula, *i.e.* Spain and Portugal. They rank as the highest class of racial people, above even the younger generations of full-blooded Europeans born in New Spain. *Peninsulares* could be early-arriving *conquistadors* or the general settlers who came later in the 16th century and beyond. The notion of a *peninsular* is an important cultural distinction for the development of New Spain because it highlights how pervasive and specific the class system of the new society was. There were subsections within even European groups on top of the racial separation of mixed race, indigenous, and African people as well.

41 Johnson, "Rewriting Native Imperial History," 51–52.

42 Johnson, 26–28.

confession after the official accusation by friars. Don Carlos's cousin and neighbors testified that he was a false convert, even quoting him saying friars should not, "teach the Christian Doctrine, nor take away or hinder the Indians from their vices and ancient customs, but leave them to live as their ancestors did."⁴³ Bishop Zumárraga, the man heading the investigation, persuaded all Texcoco nobles to turn over everyone they knew holding idols, which they did willingly to avoid charges of heresy on themselves. Native religion threatened the teachings of the Catholic Church, and, by proxy, the authority of New Spain; by using Don Carlos to proclaim to the native population that they must embrace Christianity or face the devil, the Inquisition successfully gained more religious and political control over the central valley.

Zumárraga's account of native testimonies in the *proceso criminal* of Don Carlos exhibits evidence of the nobility's desire to return to the laws and traditions of their old religion.⁴⁴ Post-conquest, only the highest social castes held the collective oral knowledge of the past. Book VIII of the *Florentine Codex* explains that the nobles also could read the beautiful texts describing the religion and history of their ethnic groups or families.⁴⁵ Friars used personal accounts from indigenous nobility to reconstruct what daily life and religion would have looked like pre-conquest, which helped give the nobility a position of even greater importance. Bernardino de Sahagún, Toribio de Motolinía, and other friars learned Nahuatl in order to express Christianity to the nobility in their native terms. They then expected the nobility to pass their knowledge on to the lower classes, providing religious control in another way. Following the revised goals of the Catholic Church after the Council of Trent, friars destroyed all evidence of the old religions. They purged idols and symbolism from the houses of nobles and burned any books they found along the way.⁴⁶ The Spanish did not trust the nobility to be truthful about their idolatry since they still served in the Church and led their communities. Even today, there is a lack of information directly from the indigenous people on their ways of life due to continued mistrust between the indigenous and outsiders.

Friars, like de Sahagún, used the unique religious knowledge of the nobility to further their studies of indigenous culture and inadvertently placed the nobles in a position to advocate for their people and traditions during this process. Even Judge Don Alonso de Zorita admits he, "obtained information from

⁴³ "Enseñase la doctrina cristiana ni les quitase ni estorbese a los indios sus vicios e costumbres antiguas, sino que les dejase vivir como a sus antepasados." Fray Juan de Zumárraga, *Proceso Inquisitorial del cacique de Tetzcoco* (Madrid: Biblioteca Virtual Universal, 2003).

⁴⁴ Zumárraga, 63.

⁴⁵ Sahagún, *Florentine Codex*, Book VIII, prologue.

⁴⁶ Chuchiak, "Surviving Maya Codices."

aged Indian *principales* who could be regarded as trustworthy.⁴⁷ Native leaders functioned as the points of contact for Spaniards in their communication with entire native populations, which provided a niche role for the noble classes to hold their own people responsible for cultural and social wellbeing.⁴⁸ When Cortés and his *conquistadors* first encountered the Nahuatl, they met with the *tlatoque* of peripheral city-states. They described to him the military prowess and architectural wonder of Tenochtitlán, which amazed and inspired Cortés before he ever saw the city in person.⁴⁹ They shared their wealth, history, and influence with the *conquistadors* in order to impress them. Nobles also attempted to ally with Spaniards, and thus prevent any harm or ill will toward their communities.⁵⁰ *Pipiltin* served as the ambassadors of their communities in all interactions with officials of New Spain and the Spanish Crown.

Indigenous nobility helped develop language to distinguish non-noble natives from those holding land titles. The Nahuatl-Spanish dictionary, written by Molina, defined the Nahuatl word *tlalli* to be both land and inheritance, showing that the indigenous populations thought the two ideas inseparable.⁵¹ Despite Spanish influence, most natives continued to use their own terms and concepts relating to land and nobility during the early colonial period. Younger *mestizo* and *castizo* generations, like those of the late 16th and 17th centuries, combined the benefits of indigenous heritage with those of the Spanish hierarchy. Nobility continued to inherit indigenous land titles but received education unavailable to earlier generations. They did not have equality with full Spaniards and combined the two worlds with their style of dress and interactions.⁵² *Figure 6* shows the change in dress for nobility from traditional Aztec women's garments, like the *huipil* top and *cueitl* skirt on the left, to an entirely new style of combined European blouse and *cueitl*. Notice, however, that the woman dressed with European influence still wears her hair in the "horned" style of Aztec married women and does not wear shoes like a European woman in New Spain would.

Post-conquest, cultural life was not much different for those of nobility; they still held control over the lower classes, served as active religious leaders, and maintained a wealthy lifestyle. The replacement of a central power of war and

47 Zorita, *Life and Labor in Ancient Mexico*, 86.

48 Shannon Retzbach, "From *Señor Natural* to *Siervo de Dios*: The Transition of Nahuatl Nobility Under Spanish Rule, 1540–1600" (Master's thesis, College of William and Mary, 2014), 10.

49 Hernán Cortés, *Letters from Mexico*, 29.

50 Samantha Billing, "Rethinking the Conquest: An Exploration of the Similarities between Pre-Contact Spanish and Mexica Society, Culture, and Royalty" (Master's thesis, University of Northern Iowa, 2015), 129.

51 Molina, *Vocabulario en Lengua Castellana y Mexicana*.

52 Retzbach, "From *Señor Natural* to *Siervo de Dios*," 13.



Figure 6: Traditional *huipil* and *cueitl* on the left, compared with a post-conquest combination of European-style blouse and indigenous *cueitl* on the right. Illustrations by Alberto Beltrán, taken from *The Aztecs Then and Now* by Fernando Horcasitas (Mexico City: Minutiae Mexicana, 1979).

religion with Spaniards as the highest social class members,⁵³ a group that provided new oversight for the previously hegemonic nobility, was the only major structural change to society post-conquest. The indigenous nobility could slightly increase their societal standing even more through strategic marriages to Spaniards. An indigenous person, especially one of nobility, who married a *peninsulare* would become a member of that higher standing social group, and thus be uplifted in business and culture alike. In large cities, *mestizos* and *castizos* were very common; the Spaniards and natives freely intermarried at all levels of society.⁵⁴ However, this action negatively affected the traditions of indigenous society. After several generations, many noblemen with native titles had no knowledge of their Nahuatl ancestry, due to extreme Hispanicization of all noble classes.

53 Charles Gibson, "The Aztec Aristocracy in Colonial Mexico," *Comparative Studies in Society and History* 2, no. 2 (1960): 171.

54 Retzbach, "From *Señor Natural* to *Siervo de Dios*," 25. *Mestizos* are people with one European parent and one indigenous. *Castizos* are one quarter indigenous and three quarters European. New Spanish society developed these specific words, along with many others, describing other combinations, because cultural standing was important in society and mixed marriages were common among all classes and races.

LAW AND ORDER: THE LEGAL SYSTEM OF NEW SPAIN

The tribute systems of pre-conquest indigenous empires easily adapted to Spanish use as early as the 1520s.⁵⁵ *Encomiendas* first began in the Caribbean, where Spanish colonists did not aim to settle the islands for future generations, only to farm and harvest the fertile land.⁵⁶ New Spain, the area shown in *Figure 7*, did not provide the ideal location for continued *encomienda* implementation; highly developed societies with a strong caste system already lived on the land and harvested natural resources to fulfill their own needs. The Spanish Crown never fully supported the system because of its potential for native exploitation, but the lucrateness of *encomiendas* for *encomenderos*, the owners and operators, allowed the practice to continue growing in the New World.⁵⁷ Compared to those of the West Indies, New Spain *encomiendas* were large; *encomenderos* oversaw thousands of workers in tributaries. The system relied on the continuation of robust pre-conquest tribute and trade systems to function.⁵⁸ The early map of New Spain pictured in *Figure 7* exhibits many roads, rivers, and towns with both Spanish and Nahuatl names. However, this infrastructure existed long before the Spanish conquest. New Spain and its network of *encomiendas* were built from the foundation and resources of the Aztec Empire.

The Spanish Crown recognized the higher societies present in Mesoamerica and sought to treat indigenous populations with more legal respect than what it had granted other colonized areas of the New World. Following Cortés's appointment to governor of New Spain in 1522, the king called for no formation or distribution of *encomiendas* in the new colony. Cortés, however, did not abide this rule and granted *encomiendas* to his loyal Spanish supporters. The first generation post-conquest contained 506 *encomenderos*: 345 *conquistadors*, 158 settlers, and 3 native nobles.⁵⁹ *Conquistadors* were Europeans who arrived in New Spain before the establishment of the first Mexico City Royal Court in 1528, while all Europeans who arrived after that point were considered settlers.⁶⁰ The overwhelming majority of both settlers and *conquistadors* came from southern Spain and bore no titles or claims to European nobility. This fact would lead many Spaniards, male and female, to intermarry with the nobility and gain a title with potential land grants.

55 Billing, "Rethinking the Conquest," 120.

56 Robert Himmerich y Valencia, *The Encomenderos of New Spain 1521–1555* (Austin: University of Texas Press, 1991), 11.

57 Himmerich y Valencia, 12.

58 Berdan, "Trade, Tribute, and the Market in the Aztec Empire," 14

59 Himmerich y Valencia, *The Encomenderos of New Spain*, 7.

60 Himmerich y Valencia, 5.



Figure 7: Map of New Spain. *Additamentum Theatri Orbis Terrarum* by Abraham Ortelius. This image is in the public domain.

In the *encomienda* system, native nobility served as a bridge between the working class natives and the Spanish *encomenderos*.⁶¹ *Tlatoque* led tenant-farming areas; each basic *encomienda* usually consisted of one *tlatoani* overseeing all operations.⁶² The Crown granted the native nobility that owned lands pre-conquest the right to keep those lands and work them, but the presence of *encomiendas* in New Spain and a lack of Spanish understanding of native land practices complicated legal relationships.⁶³ Many natives, especially those of nobility who had lost greatly during the conquest, preyed upon these weaknesses to gain control of former public or religious land.⁶⁴ *Encomienda* grants only applied to the people employed in the operation and not the land on which it operated.⁶⁵ This caused confusion for the native nobility involved because their concept of leadership inherently tied into the ownership of land.

In 1550, the Crown announced that all private *encomiendas* must shut down,⁶⁶ and any *encomienda* found guilty of mistreating the native workers

61 Himmerich y Valencia, *The Encomenderos of New Spain*, 5.
 62 Hollingsworth, "Pedro de Moctezuma and his Descendants," 25–28.
 63 Hollingsworth, 26.
 64 Hollingsworth, 25.
 65 Himmerich y Valencia, 13.

was in danger of permanently losing the grant for that *encomienda*.⁶⁷ Native workers of *encomiendas* faced stricter work schedules and harsher conditions than they did under Aztec rule. As discussed in the first section of this article, the postclassic *pipiltin* were hands-off managers and allowed *macehualtin* artisans and farmers to manage their own production. Indigenous nobility were concerned with the bottom-line tribute production, while new *encomenderos* and overseers were looking to make profit off the workers' labor.⁶⁸ Both historic and current scholars consider the *encomienda* system in New Spain debauched because of this hard shift in management practices for the lower classes. At the same time, they needed to adjust to drastic drops in native population numbers due to rampantly spreading Old World diseases. In the central valley, the indigenous population dropped by tens of millions following contact with Spaniards.⁶⁹ All classes of natives fell to disease, but the *macehualtin* also faced harsh treatment at the hands of those in power, including native *pipiltin*.

Caciques, a word borrowed and adapted from the West Indies, were the surviving members of the *pipiltin*. They held limited legal power but controlled tribute systems of both goods and services for their communities. Early *caciques* also found a role in religion by pressuring their constituents to convert with them from their native religions to Catholicism.⁷⁰ Religion post-conquest did not inherently tie into the economy of New Spain, but through the *caciques'* dual roles of lord and quasi-missionary, the pre-conquest tradition of a united cultural and political force continued.

Spanish courts granted non-nobles the right to own the land they worked, something that had not happened under native rule. *Caciques*, unlike the pre-conquest noble lords, did not control all the land in their communities. Similar to pre-conquest merchants, a class of non-noble elites, driven by the European-style trade and tribute system, grew in the New Spanish culture.⁷¹ Ensuing land disputes and general culture shifts prompted many native elites to turn to the courts system of New Spain for official guidance. Natives looking for legal settlement could pursue it through the *Real Audiencia* (Royal Court) in Mexico City, later the *Juzgado General de Indios* (Court of Appeals for Indians, formed in 1591), and lesser native officials.⁷² All these avenues addressed native disputes by attempting to reconcile Spanish legal codes with Nahua

67 Chipman, *Moctezuma's Children*, 87.

68 Gordon, "An Anthro-Geographic View of an Economy," 4. De Lucia, "Domestic Economies and Regional Transition," 87.

69 De Lucia, 76.

70 Retzbach, "From *Señor Natural* to *Siervo de Dios*," 26.

71 Retzbach, 41.

72 Susan Kellog, *Law and the Transformation of Aztec Culture, 1500–1700* (Norman: University of Oklahoma Press, 1995), 7.

cultural notions of land and title. Understandably, this led to unpredictable verdicts across all of New Spain. Natives looking to start legal disputes could present their case to multiple policymakers and receive multiple different responses. Commoner disputes flooded courts with cases that relied on native legal tradition, of which the Spanish *oidores*⁷³ had no knowledge.⁷⁴ Seven hundred native witnesses offered testimony before the *Real Audiencia* in the 16th century, of which the nobility only made up a small fraction.⁷⁵ When nobility did enter the courtroom, they did not rely on pre-conquest traditions and unverified land claims to assert their rights. Because of their superior knowledge of Spanish language and legal culture, nobles presented post-conquest grants of land from Cortés and other officials as their proof of inheritance.⁷⁶ They understood that Spanish courts and officials would recognize the authority of Spanish documents and likely could not comprehend indigenous documents written in Nahuatl glyphs.

Natives could also settle land disputes directly with new European settlers, as the people of Tultepec did in *Figure 8*. This document features both Nahuatl glyphs and Spanish text overlaying a map, so all parties in the agreement, even farmers without formal education in any language, could easily understand it. The document bears no insignia for a court official, meaning it was created exclusively between the farmers of Tultepec, an agrarian town near Teotihuacán, and the Spaniard Juan Antonio Covarrubias. The dispute settled with the drawing of this map regarding Covarrubia's cattle grazing through the town's fields. The Spanish words written across the map explain what is pictured: all cattle must stay inside the red outlined areas, with the farming areas separated to the south. The map is "readable" for natives who are illiterate because they can recognize the green hill of Tultepec surrounded by the small houses of commoners and the five area churches.

Spanish tribute production heavily burdened native populations, who sought to lighten this burden through the courts. They challenged the *caciques*' rights to tribute from lower classes, but the courts did not hear their petitions.⁷⁷ The presence of *caciques* and their power to order tribute from non-noble natives shaped the social structure of New Spain. Households that provided tribute to *caciques* had different dynamics than those free of tribute production. Many extended families all lived together, usually three to ten males with their wives

73 *Oidores* were high judges presiding over Royal courts throughout the Spanish Empire.

74 Kellog, *Law and Transformation of Aztec Culture*, 11.

75 Kellog, 35.

76 Kellog, 49.

77 Kellog, 58.

and children, to create enough tribute for the demand.⁷⁸ Rural commoners in the service of *caciques* had less specialization than urban commoners did, because they practiced agriculture in addition to whatever trade they worked for tribute. When commoners brought claims before the courts, they did so as large communities.⁷⁹ Indigenous populations could only afford the high taxes, translation costs, and travel expenses required to reach the *Juzgado* (or even a lower magistrate for rural communities) when they pooled money between households. *Caciques* could help with this process, but they often pressured their constituents to drop the cases instead. Post-conquest native nobility served only their own interest of appealing the higher-caste Spaniard.



Figure 8. Indigenous Farmers of Tultepec vs. Spanish Rancher Juan Antonio Covarrubias. Map of lands in the Tultepec & Jaltocán Regions adjacent to the Hacienda de Santa Inés, 1569. This image is in the public domain.

CONCLUSION

On January 29, 1544, Don Julián of Tepeapulco petitioned the viceroy for help in a land dispute between himself, Spaniard Arias de Saavedra, and the commoners of Tepeapulco.⁸⁰ He looked to the highest power in New Spain to resolve an issue spanning cultures, legal traditions, and languages. Like every

80 Borah, *Justice by Insurance*, 69.

other noble in the 16th century, Don Julián found himself positioned between conquering Europeans and aggravated *macehualtin*. He and his fellow elites retained control over native commoners but had new oversight from the higher-caste Spanish; the native nobility provided an intermediary to both classes. Indigenous elites offered Spaniards a connection to the large group of native commoners; as Judge Don Alonso de Zorita explained, “the lords and nobles were and are needed, for they understand the Indians and others do not.”⁸¹ To the *macehualtin*, nobility offered a sense of familiarity in the new *encomienda* system and a connection to their shared cultural memory.

In pre-contact Nahua society, the *pipiltin* governed lower classes in all aspects of life. Nobility controlled the tribute production expected from commoners and dictated what positions they could hold in the Aztec Empire. They served as priests and historical connections to the gods, who could interpret the great Nahua texts and works of art for the *macehualtin*. Through the conquest, nobility continued to practice the old religion while also leading the mass conversion to Catholicism. This led to numerous accusations of heresy against noblemen by Spanish friars, like the *proceso criminal* of Don Carlos.

The native social elites, while still loyal to their indigenous culture, embraced Hispanicization. The children of Moctezuma II, especially Don Pedro and Doña Isabel, exemplified how nobility could continue to control their people and also ally with their new Spanish authorities. *Principales* (indigenous elders) and the most knowledgeable noblemen taught friars and translators their religion, language, and culture in order to integrate the indigenous masses into the new political system. The nobility often sided with Spaniards in post-conquest court cases, like in 1550 when the nobleman Pedro Elías asked the court to help force his subsidiary commoners to pay him due tribute.⁸² *Pipiltin* and *tlatoque* changed to *caciques* but maintained control of tribute and labor through *encomiendas*.

Aztec political structure was astoundingly adaptive to Spanish intervention during the 16th century, and credit is due to the work of the indigenous nobility. The nobility recognized similarities between European and Mesoamerican ways of life and capitalized on the unique understanding of these two cultures through formal education and Hispanicization. Nahua culture continued to exist, although illegally per the Inquisition, in New Spain through the efforts of the social elite to maintain their ancient traditions. The mutually beneficial relationship that formed between Spaniards and Nahua nobles was pervasive in the religion, law, and politics of the colony. Nobility continued to live in

81 Zorita, *Life and Labor in Ancient Mexico*, 41.

82 Zorita, 70.

relative comfort and ease by following the most realistic path for their survival in New Spain. By creating niches for the *tlatoque*, *pipiltin*, and other classes of nobility, natives forged a new and lasting political culture in the central valley of Mexico.

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RED-HAIRED HEROINES: A COMPARISON OF GENDER REPRESENTATION IN *THE LITTLE MERMAID* AND *NAUSICAA OF THE VALLEY OF THE WIND*

Grace Young

Abstract

This study presents a thematic microanalysis of the lead female characters of two children's animated films in terms of feminist anthropology: Nausicaa from Studio Ghibli's *Nausicaa of the Valley of the Wind* (1984) and Ariel from Walt Disney Animation Studio's *The Little Mermaid* (1989). I chose these characters because of parallels in their status, age, appearance, year of films' release, and popularity of the films and their animation studios. I include a discussion of whether these characters exemplify female empowerment in terms of power and agency. Because of its qualitative nature, I conduct this analysis from a cultural relativist standpoint, putting each film in context before delivering a conclusion. I examine the characters based on differing motivations and relationships with men, family, other women, *etc.*, as well as differing gender ideals, expectations, and cultural values between Japan and the United States. I focus specifically on cultural values in the mid- to late-1980s when the films were released and how those same ideals and values still resonate today. I seek to illustrate the relationship between popular culture and enculturation and examine the ways images of women's embodiment and values provide an example for children. When each aspect of a character's identity is examined and compared in relation to culture, traits like selfishness versus selflessness are subjective, while levels of agency and power are much more important in deciding which character is a more beneficial role model to young viewers.

INTRODUCTION

Our stories begin with two young women. They are presented as spunky, adventurous, and even a little rebellious, braving dangerous landscapes in pursuit of their goals and not always following rules set by society. Their narratives diverge, however, creating differences between them and revealing the societal structures that drive their actions. This study presents a thematic microanalysis of the lead female characters of two children's animated films in terms of feminist anthropology: Nausicaa from Studio Ghibli's *Nausicaa of the Valley of the Wind* (1984) and Ariel from Walt Disney Animation Studio's *The Little Mer-*

maid (1989). I also include a discussion of whether these characters exemplify female empowerment in terms of power and agency. I chose these characters because of parallels in their status, age, appearance, year of films' release, and popularity of the films and their animation studios. Because of its qualitative nature, I conduct this analysis from a cultural relativist standpoint, putting each film in context before delivering a conclusion. I also examine the characters based on differing motivations and relationships with men, family, other women, *etc.*, as well as differing gender ideals, expectations, and cultural values between Japan and the United States. I focus specifically on cultural values in the mid- to late-1980s when the films were released and how those same ideals and values still resonate today.

I seek to illustrate the relationship between popular culture and enculturation and examine the ways images of women's embodiment and values provide an example for children.. Animated films are some of the first instances, outside school and family, in which children are exposed to their own and others' cultures and concepts like gender, power, and much more. In children's media, complex ideas, such as the ways cultures operate, are presented in simplified terms suited for the average child viewer. Therefore, they are ideal for thematic analysis.

IDENTITY AND DISCOURSE

To understand the importance of how identities are shaped by forces of enculturation, we must first understand the importance of identity itself. Diane Collier states it is not a static entity but rather is composed of "narratives that are constantly constructed and re-constructed" by means of individual cultural exposure (as cited in Binkley, 2016, p. 14). This cultural exposure includes Michel Foucault's ideas of "normalizing discourses:"

If people think of themselves as purported by normalizing discourses, they will recognize themselves in talk about normality and abnormality. Individuals will inculcate these ideas, and these ideas will act to produce a person's very identity. Identity is a site of power in contemporary societies. It is a locus of domination through which people are controlled. (as cited in Mascia-Lees & Black 2016, p. 85)

Visual media may serve as a form of normalizing discourse, acting as a gauge against which children, most likely subconsciously, will measure themselves as normal or abnormal. From here, they base their identities in part on the

characters they see in these films and wield that power, or lack thereof, within their own identity. I will examine how these films shape the identities of their viewers and what messages, subtle or not, they send to their viewers about the role of a young woman. Although it would be ridiculous to claim children's media is completely to blame for issues of identity formation, and self-esteem later in life, they still contribute to the larger discourse. They also serve as both a reflection of society and something some members of society strive to reflect in themselves. Whether this could be considered positive or negative relies on the films in question.

MEDIA AND ENCULTURATION

Before analyzing the films, it is important to understand the importance of this process. According to Binkley, children's animated films affect the identity formation and psychological health of child viewers. In her article, "An Argument on Disney and Psychological Development," she says, "The psychological effects are insurmountable when it comes to how Disney affects childhood development on the bases of growth, play, and identity administration, and should be critically evaluated by viewers, parents, and teachers alike" (Binkley, 2016, p. 11). Binkley also points out that entertainment media in general, not just Disney, "gives a child insight on how to behave sexually, how to perform gender roles, what class distribution is, and teaches so many more values that are essential to a child's life and growth" (2016, p. 11). There is a strong connection between children's entertainment media and the healthy growth and development of young children who consume such media and incorporate it into their personal development, behaviors, and play. The performance of gender roles and how roles are portrayed in characters like Nausicaa or Ariel could be either beneficial or damaging. Beneficial portrayals, in this context, include representations of leadership, strength, and agency while damaging portrayals reinforce the idea of women as voiceless objects.

In the U.S., it is evident women suffer in both a personal and structural sense. The ways in which those forces work against women's better interests are on prominent display in statistics for both sexual violence and women in leadership positions. For example, one in five women and one in 71 men will be raped at some point in their lives (Black et al., 2011), and 91% of victims of rape and sexual assault are female, while 9% are male (Rennison, 2002). Regarding leadership, women, as of 2019, make up less than 30% of governmental positions in the United States with 25% in the Senate, 23.4% in the House, 28.6% as state legislators, 18% as governors, and 26.1% in cabinet-level

el positions (Pew Research Center, 2019). In 2018, only 4.8% of *Fortune* 500 CEOs were female, and, in 2016, women made up 30.1% of university and college presidents (Pew Research Center, 2019). Media and popular culture do not cause but still reinforce the ideals that lead to structural forces leading to the underrepresentation of women in leadership.

It is important to understand the gender roles and stereotypes present during the making and release of *The Little Mermaid* and *Nausicaa of the Valley of the Wind*. In a study done by Elizabeth L. Haines, Kay Deaux, and Nicole Lofaro about gender stereotypes in the United States, they found that, although women have become significantly more involved in the public sphere—such as in sports, medicine, and the workforce in general—statistical evidence suggests stereotyping was still very strong in the mid-2010s. When compared to the same study done in the mid-80s, the researchers found that, “perceptions of gender trait differences remained consistent and strong between the two time periods,” as women continued to be rated as more “communal,” and men as more “agentic” (Haines, Deaux, & Lofaro, 2016, p. 358). Agency may be understood in several ways according to various social scientists such as Pierre Bourdieu and Anthony Giddens. In general, agency is defined as, “The capacity of individuals to act independently and to make their own free choices” either as a result of overarching societal structures or the cause of those structures (Barker, 2005, p. 448). This information explains that the variety and frequency of gender stereotyping prevalent in the 1980s, the decade in which these films were released, remains the same or at least similar to gender stereotyping today. This suggests these films still encapsulate current concerns in gender stereotypes and representation, despite being released almost 40 years ago.

WHY ARIEL AND NAUSICAA?

I chose Ariel and Nausicaa because their similarities bring their differences more sharply into focus. They are also ideal because of the decreased variability that could be caused by intersectionality—which is “the relationships among multiple dimensions of and modalities of social relations and subject formations,” in this case, those of race, age, and social status. (McCall, 2005, p. 1771). I have divided similarities between Ariel and Nausicaa into primary, secondary, and tertiary characteristics, primary being the most pertinent to the study of gender. Primary similarities are as follows: they are both sixteen, appear to be of Caucasian descent, are princesses of their respective kingdoms, have princes as love interests, have only fathers present, and have deceased mothers. They are congruent in age, race, status, sexuality, and family structure. Secondary

similarities include the possession of secret rooms that reflect their unique interests and concerns, their introduction as curious explorers, and their eventual goals of defeating female antagonists. Tertiary characteristics may be the least important but further reinforce the number of foundational traits they have in common, such as both having red hair and animal companions.

While I do have an opinion regarding which female character is a better role model and other value-based assertions, I will be conducting the remainder of this analysis using cultural relativism. This will place each film in context before delivering a conclusion about whether they are role models based on the levels of power and agency they are granted throughout their respective films.

THE LITTLE MERMAID: THOUGH SHE BE BUT LITTLE, SHE IS FIERCE...-LY INDEPENDENT?

Ariel, the youngest of seven sisters, is princess of the underwater Kingdom of Atlantica, which is comprised of merpeople and other underwater creatures and is ruled by Ariel's father, King Triton. Ariel is introduced when she is exploring a shipwreck in shark-infested waters, searching for artifacts from the human world to add to her collection. She is presented as curious, adventurous, and brave. It becomes apparent that she is also quite rebellious, as she directly disobeys orders, forgets important events, and puts herself in dangerous situations. She stands up to her father, finds a way to leave her world and become part of the world she admires, and sails into the sunset with her prince.

On November 17, 1989, film critic Roger Ebert stated that one of the reasons he believed the film stands apart from other work of the time was that, "Ariel is a fully realized female character who thinks and acts independently, even rebelliously, instead of hanging around passively while the fates decide her destiny. Because she's smart and thinks for herself," (Ebert, 1989). Another critic, Janet Maslin, asserted, "teenagers will appreciate the story's rebellious heroine, a spunky, flirty little nymph who defies her father's wishes when she leaves his underwater kingdom to explore the world above the ocean's surface" (1989). At the time of the film's release, Ariel was touted as an independent, rebellious, smart, and spunky young woman. However, if one examines her character more closely, it becomes evident she actually has little agency over her own life. She is either controlled or manipulated by her father, her father's right-hand man (or crab) Sebastian, the sea-witch Ursula, and eventually Prince Eric, or, rather, what he represents. Eric, as a European prince, symbolizes the man as synonymous with culture and civilization, while Ariel, as a mermaid and a woman, is connected to nature. While one could argue that Ariel was

only following her dream of living on land, and Eric happens to be a symbol of that lifestyle, it still reinforces the idea that civilization is superior and that men are the focus of that world. Ariel must change fundamental aspects of her identity—her voice and her tail—to fit in. Throughout her narrative, she is coerced into making what she thinks are her own choices and is watched closely at all times by either Sebastian or Ursula's eel henchmen. When she finally gets her voice back and Prince Eric realizes who she is, she becomes passive and dependent on Eric to save her and kill Ursula.

In her fierce independence, Ariel often comes across as selfish with little to no regard for her responsibilities to her family, her kingdom, or the feelings and fears of her closest friend, Flounder. When they are exploring the shipwreck in dangerous waters, she responds to his protests of not being able to swim fast and being concerned with the danger of the situation with comments like, "Flounder, hurry up," "You're not getting cold fins now, are you?" and "Flounder, don't be such a guppy ... nothing's going to happen" (Ashman & Musker, 1989). She is similarly dismissive of Sebastian who, after suffering a traumatic day, tells her, "This has got to be the most humiliating day of my life" (Ashman & Musker, 1989). Her response is to pat him on the head and fall asleep while he's speaking to her. After she misses an important concert where she was supposed to sing, her first thought is, "Oh no, my father's gonna kill me," and, when explaining why she was not there, she says she "just forgot." While she spends her first night on land, seeming completely happy and content, the whole kingdom of Atlantica is searching for her, and Triton says, "Let no one in this kingdom sleep until she's safe at home" and expresses his remorse at her leaving, saying, "What have I done?" (Ashman & Musker, 1989). Ariel's relationship and loyalty to her family and kingdom is so weak, in fact, that Ursula specifically recognizes her as the perfect member of the family to exploit in order to regain her power from King Triton, telling her eels, Flotsam and Jetsam, to "keep an extra close watch on that pretty little daughter of his; she may be the key to Triton's undoing" (Ashman & Musker, 1989).

Ariel could be seen as brave for doing whatever it takes to free herself from a situation where she feels oppressed by her status and responsibilities. However, upon closer inspection, she is simply transferring her oppression from one dominant force to another—from her father, to Ursula, and then to Eric. In the beginning, it is her father, King Triton, who has ultimate power over her, saying, "I set certain rules, and I expect those rules to be obeyed" (Ashman & Musker, 1989). When he breaches her trust by destroying items in her collection, especially her statue of Prince Eric, his power over Ariel is transferred to Ursula. Ariel signs a contract with Ursula, giving Ursula her voice in exchange

for a chance to live as a human. She remains under Ursula's thumb for most of the film and then transfers her power to Prince Eric, on whom she relies to save her and ultimately kill Ursula. If her plan was to escape the oppression of royalty, then becoming Eric's queen at the end would only give her more responsibilities and expectations.

When those around Ariel describe her or compliment her, they focus mainly on two things: the beauty of her appearance and the beauty of her voice. Ursula tells her, "You'll have your looks, your pretty face," when she expresses concern at the loss of her voice (Ashman & Musker, 1989). Scuttle tells her when she first becomes human, "You look great kid, you look sensational" (Ashman & Musker, 1989). When she joins Eric and his confidant Grimsby for dinner, Grimsby says to Eric, "Oh Eric, isn't she a vision" (Ashman & Musker, 1989). Eric tells her, "you look wonderful," and Grimsby reiterates that, "It's not often that we have such a lovely dinner guest" (Ashman & Musker, 1989). After Eric invites Ariel on a carriage tour of the kingdom, Sebastian tells her, "Tomorrow when you take that ride, you gotta look your best," explaining, "you gotta bat your eyelashes ... you gotta pucker your lips" (Ashman & Musker, 1989). As for her singing voice, Sebastian says, "She has the most beautiful voice," Eric says, "She had the most beautiful voice," and, "that voice, I can't get it out of my head" (Ashman & Musker, 1989). The only time someone compliments her regarding something other than her looks or her voice is when Grimsby tells Eric, "Far better than any dream girl is one of flesh and blood, one warm and caring, and right before your eyes," which, framed in this way, is meant to be a testament of her suitability as a wife, not a true compliment of her personality (Ashman & Musker, 1989).

Other characters more frequently ascribe negative traits to Ariel, particularly focusing on her rebelliousness or her sexuality. Triton tells Sebastian that he believes, "Ariel needs constant supervision," and to her, he says, "I just don't know what we're going to do with you, young lady" (Ashman & Musker, 1989). When Triton finds out she has been to the surface, he criticizes her "careless and reckless behavior" (Ashman & Musker, 1989). Sebastian comments that "somebody's got to nail that girl's fins to the floor," and Triton, upon discovering her secret room of artifacts and that she had saved the life of a human, asks her, "Have you lost your senses completely?" (Ashman & Musker, 1989). Her sexuality is framed as something shameful or negative. Ursula describes her as, "King Triton's headstrong, lovesick girl" (Ashman & Musker, 1989). When Ariel almost kisses Eric before the third day, Ursula calls her a "little tramp." Ursula, upon making a bargain with King Triton, tells him, "The daughter of the great sea king is a very precious commodity" (Ashman & Musker, 1989).

Ursula's eels, while convincing her to seek help from Ursula, refer to her as a "poor sweet child." After Ariel arrives on land and is taken in by Prince Eric, one of the castle wash ladies can be heard gossiping to the other ladies, saying, "Well, you must have at least heard of this girl ... I mean really, this girl shows up in rags and doesn't speak, not my idea of a princess" (Ashman & Musker, 1989). Contrary to positive compliments about her appearance, negative comments tend to target her intelligence, sexuality and feelings for Eric, tendency to rebel, and her status as a young woman, further emphasizing those features as being bad and shameful.

Other characters frequently use Ariel's feelings for Eric to manipulate or coerce her. The eels use her feelings for Eric to make her want to go to Ursula for help, saying, "We represent someone who could help you, someone who can make all your dreams come true. Just imagine you and your prince together forever" (Ashman & Musker, 1989). She denies their advances at first but goes with them after they hit the face of Eric's broken statue toward her to remind her of her desires. During the entirety of their contractual negotiation, Ursula manipulates and mocks Ariel, once again taking advantage of her feelings for Eric. The deal they agree on, which Ursula sets out for her, states, "Before the sun sets on the third day, you've got to get dear old princey to fall in love with you—that is, he's got to kiss you. Not just any kiss, the kiss of true love" (Ashman & Musker, 1989). This skewed version of romance and love being inextricably linked to a single kiss could serve as the subject of its own essay, but the agreement still establishes that he has the power over her: he must kiss her, he must fall in love with her, and he has all the power over her fate.

Ariel shows remorse at leaving her family behind, saying, "If I become human, I'll never be with my father or sisters again," to which Ursula responds, "That's right, but you'll have your man," in a covert mockery of the choice Ariel is making (Ashman & Musker, 1989). The payment Ursula requires from Ariel is also symbolic of her lack of power: her voice. Ariel shows concern at this proposition, only to be interrupted by Ursula who reaffirms that her value lies not in her personality or agency by saying, "You'll have your looks, your pretty face, and don't underestimate the importance of body language" (Ashman & Musker, 1989). In the next verses of the song Ursula sings to Ariel, she manipulates her perception of the value of speech, specifically women's speech in the human world, and why the lack of a voice is of no concern:

"The men up there don't like a lot of blabber
They think a girl who gossips is a bore
Yet on land it's much preferred for ladies not to say a word

And after all, dear, what is idle prattle for?
Come on, they're not all that impressed with conversation
True gentlemen avoid it when they can
But they dote and swoon and fawn
On a lady who's withdrawn
It's she who holds her tongue who gets a man." (Ashman & Musker,
1989)

Ursula cites gossip, "idle prattle," and conversation as negative qualities of women, while a woman who is withdrawn and holds her tongue is the ideal object of male affection. In the context of the song and setting, these words are obviously meant as a form of parody or satire, but in Ariel's mind, they are true, and we never see her learning that they are not.

The message portrayed at the beginning of the film is of a young woman who wishes to escape the oppression of royalty to pursue her passions. Throughout her narrative, she must sacrifice some of her agency to advance her agenda. But, as soon as she is coerced into giving up her voice to accomplish this goal, she loses a great deal of her agency and is at the mercy of those around her. In the end, she gets what she wants, but without having used her own agency to accomplish her goals.

NAUSICAA OF THE VALLEY OF THE WIND: A REBEL WITH CAUSE

Nausicaa is the princess of a small village called the Valley of the Wind and the protagonist of one of the first feature-length films created by director Hayao Miyazaki. The setting is a world thousands of years in the future, following the destruction of the earth in what they call the "Seven Days of Fire." There are only two main civilizations left besides the Valley, the Pejites and the Tolmekians, who are constantly at war with one another. Nausicaa is first seen exploring what is later revealed to be the "Toxic Jungle," a wasteland caused by the fallout from the Seven Days of Fire that has regrown but still produces poisonous spores. When she finds something that appears to be of value, she says, "This should make the people of the Valley happy," and that they "won't have to worry about finding materials for making tools for a long time" (Takahata, Jackson, & Dempsey, 1984). From the beginning, she is shown to care deeply about "her people." Although she is a rebellious teenager, she rationalizes her actions as being for the greater good of her kingdom. She is first presented as competent, brave, and a little reckless, as she is endangering herself by entering the Toxic Jungle in the first place.

Although there are no reviews for *Nausicaa of the Valley of the Wind* from the year of the film's original release, there is one from 2010. This reviewer describes Nausicaa in the following way: "The Valley's princess, Nausicaa, is a free spirit and genuine 'renaissance man.' Puzzled by the jungle's nature, she frequents its depths for resources and answers. Aside from mastering flight, she's also a ferocious warrior when need be. But what truly defines her is her uncanny rapport and devotion to all living things" (Mirasol, 2010). Mirasol also comments on Miyazaki's choice of representing the hero of mankind as a woman, saying, "We sense his hope in women more than men, believing them to be the key to humanity's progress as opposed to man's history of violence" (Mirasol, 2010).

Nausicaa is shown from the beginning as exceedingly compassionate toward others—her "uncanny rapport and devotion to all living things." When she is first introduced to her animal companion, a fox-squirrel named Teto who accompanies her throughout the rest of the film, he is frightened and begins to bite and scratch her. She responds to these actions with reassurance that there is "nothing to fear" and says he was "just a little scared" (Takahata, Jackson, & Dempsey, 1984). This is a direct contrast to Ariel's treatment of Flounder and disrespect for his feelings and fears. Nausicaa also cares a great deal for her ailing father, stating with deep sadness that he "can't fly anymore" (Takahata, Jackson, & Dempsey, 1984). When a group of young girls offer her some "chiko nuts" for her journey, even though her father has just been killed, the Valley is under siege, and she is being taken away by the enemy, she responds with a kind, "Oh my, there's so many! You must have worked very hard ... I'll think of you when I eat them" (Takahata, Jackson, & Dempsey, 1984). When they begin to cry, she says, "There's no need to cry, I'll be back very soon, okay" (Takahata, Jackson, & Dempsey, 1984). One old man of the Valley says to the antagonist, Princess Kushana of Tolmekia, regarding Nausicaa's kindness, "Our princess told me that she truly loved these beat up old hands of mine" (Takahata, Jackson, & Dempsey, 1984). Closely related to Nausicaa's kindness and compassion toward those she cares for is her diplomacy toward those who could be considered threatening, such as the Tolmekians and the insects of the jungle. When faced with conflict, she says to an angry insect, "Please forgive us for disturbing your nest, we're very sorry. We're not your enemies, we mean you no harm" (Takahata, Jackson, & Dempsey, 1984). She is compassionate, but not in a way that suggests she will only be a good wife or mother. She is compassionate as a leader to her subjects and to those who pose a threat to her kingdom, using compassion as a form of political power.

According to other characters, she is quite knowledgeable. Lord Yupa muses, “She certainly knows how to read the wind” (Takahata, Jackson, & Dempsey, 1984). She also has a secret room, in which she conducts scientific experiments aimed at curing her father’s illness and understanding the way the Toxic Jungle works. She shows Lord Yupa this room and says when they are reunited that she worries it will frighten her people. Contrary to the adjectives used to describe Ariel, like pretty and lovely, Nausicaa is described as strong. A new mother says of her baby, “May she grow up to be strong like Nausicaa” (Takahata, Jackson, & Dempsey, 1984). However, her strength is sometimes seen by others as recklessness, as her father’s retainer Mito says, “It’s good to hope for a daughter that’s strong like the princess, but not for one that likes to play in the Toxic Jungle” (Takahata, Jackson, & Dempsey, 1984). This statement, however, is refuted by Nausicaa, “but the jungle is where I found the Ohmu shell” (Takahata, Jackson, & Dempsey, 1984). A citizen of the Valley says, “I think the princess should explore all she wants,” and Lord Yupa, a highly respected citizen of the Valley, asks, “Who else would rescue me when I’m in trouble?” (Takahata, Jackson, & Dempsey, 1984).

Of course, Nausicaa also has faults, which are pointed out by antagonists such as the princess of Tolmekia, who tells Nausicaa that in her diplomacy she is “too naïve” and says, “You shouldn’t think we’re best friends now just because you saved me” (Takahata, Jackson, & Dempsey, 1984). During a flashback Nausicaa has of her childhood, she is shown harboring a baby Ohmu, which she knows is against the rules. She fights for the safety of the baby, saying it did not do anything wrong, but the adults take it away, saying, “the insects have bewitched her” (Takahata, Jackson, & Dempsey, 1984). After she eventually gives in to her anger at the constant death and violence of war, she tries to attack a Pejite man who has told her they are going to destroy the jungle. When two Pejite women go to visit her in her cell, the voice of the man she attacked says to them, “Careful, she’s a wild one” (Takahata, Jackson, & Dempsey, 1984). While positive compliments focus on her skill, knowledge, and strength, negative comments focus her idealism, diplomacy, misunderstood compassion for insects, and fighting spirit. These negative comments are later refuted by her eventual success in the film.

Nausicaa also develops a close relationship to a Pejite prince, Asbel. Their relationship is portrayed as more complex than the simple true love’s kiss narrative and more indicative of a realistic relationship. Miyazaki, the director, is quoted saying, “I’ve become skeptical of the unwritten rule that just because a boy and girl appear in the same feature, a romance must ensue. Rather, I want to portray a slightly different relationship, one where the two mutually inspire

each other to live—if I'm able to, then perhaps I'll be closer to portraying a true expression of love." The most important thing about their relationship is that it is founded on mutual feelings of respect and trust. Nausicaa and Asbel spend time having conversations about the Toxic Jungle, the death of Asbel's sister, and other matters relating to the state of the world. Neither has more power than the other; they are simply portrayed as two individuals who care for each other and have common beliefs and goals. Asbel is an ally of Nausicaa's and stands up for her when the situation calls for it, but he is not her savior, as she is capable of saving herself.

One key event that relates directly to Nausicaa and the subversion of gender expectations relates to the Valley's prophecy, which Nausicaa's grandmother, Obaba, relays to her from memory: "There is a figure in the upper left corner. After 1000 years of darkness, *he* will come, clad in blue and surrounded by fields of gold, to restore mankind's connection with the earth that was destroyed, and he will guide the people of this planet at last to a land of purity" (Takahata, Jackson, & Dempsey, 1984). The figure to whom she is referring is a man in the upper left corner of a tapestry who represents the individual in the prophecy who is assumed to be male. In Nausicaa's final act of self-sacrifice, she throws herself in front of the stampeding Ohmu to save the Valley. In this moment, she is revealed to be the individual from the prophecy, and her grandmother says, "The princess has quieted the rage of the Ohmu. She gave her life to save the Valley" (Takahata, Jackson, & Dempsey, 1984). Though it is revealed moments later that the Ohmu have the ability to heal Nausicaa, the key is she was willing to risk her life to save everyone and is rewarded for her actions. Throughout the film, it becomes clear that a key characteristic of Nausicaa's character is her selflessness. She risks her life for the princess of Tolmekia, the prince and princess of Pejite, her people, the Ohmu, and even her enemies.

NAUSICAA AND ARIEL

Nausicaa's and Ariel's levels of power and agency reflect differing societal structures. I will compare Ariel and Nausicaa using a series of questions regarding goals, motives, belongings, and relationships with others including friends, family, and love interests, and appearance in terms of objectification. Some of their characteristics can be attributed to differing cultural ideologies and some to levels of agency allowed to women, but we must first look at how they compare to one another before those questions can be answered.

Nausicaa and Ariel are each introduced as curious explorers, but their differing motivations soon become clear. Nausicaa, upon finding a rare object,

immediately says that it “should make the people of the Valley happy,” showing her loyalty to her people and illustrating the way she places their wellbeing above her own. One could interpret this sentiment as falling into the trope of women as caregivers, but considering her role, it could also signify her dedication to her people and competence as a leader. When Ariel finds an artifact of the human world, she takes it to add to her private collection of objects, while forgetting to attend an important event with her family for her kingdom.

Nausicaa and Ariel both achieve an eventual happy ending based on the goals they set throughout their films. Nausicaa’s end goal is to protect her people, the jungle, and its animal inhabitants from the destructive nature of mankind. Ariel’s goal is to become part of the world she admires, even though that means leaving her family behind. Ultimately, Nausicaa’s goal is a selfless one, while Ariel’s is about realizing her own personal desires. Within Japanese and American culture, these respective goals are admirable, although Japanese societal structure allows women considerably less agency than Nausicaa had in the film.

Both young women have secret rooms that represent something special to them. Nausicaa’s room is a laboratory for scientific study, where she tries to figure out how to stop the spread of the toxin to save her people from sickness. Ariel’s room houses objects and artifacts she has collected from the human world, and it represents her personal passions and desires.

Another striking difference between Nausicaa and Ariel is how appearance plays into their characterization and value throughout the film. Nausicaa’s clothing is functional, and her appearance is never overtly mentioned or presented as pivotal to the plot. Ariel wears either a clamshell bra or dress meant to be fashionable. She is often referred to as pretty or lovely, and her looks play a large part in the plot of the film since she has no voice as a human and must rely on her appearance to persuade Eric to fall in love with her. Nausicaa is often shown flying her glider, repairing windmills, and performing scientific experiments, and she is described as strong, skilled, and knowledgeable. Ariel also has interests and is passionate about human artifacts but is only complimented on the beauty of her appearance and her singing voice. Only once is she described as warm and caring, stereotypically feminine traits framed in the context of her being a good wife for Prince Eric. While Nausicaa is most often spoken to, Ariel is more often spoken about.

A major point of comparison between the two women is the portrayal of their relationships with family, men, other women, friends, and love interests. Nausicaa, although she does not speak to her father often, does appear to have a great deal of respect for him, as she is working on a cure for his illness and

even resorts to killing to avenge his death. Ariel sees her father as an antagonist, beginning when he destroys her belongings and tells her not to pursue her passions, and only ending when he gives in and allows her to live on land with Eric. The men of the Valley respect Nausicaa's authority and power as princess and will often obey her orders and trust her judgment. The men in Ariel's life talk about her rather than to her, assert their dominance over her, and reduce her to an object on many occasions: she is a pretty face and voice. Nausicaa has rapport with the women of the village as well as the men, risks her life to save the princess of Pejite, forms a bond with other Pejite women who wish to help her save the Valley, and even has a relationship built on begrudging respect with the supposed antagonist, the princess of Tolmekia. Ariel is given no close female relationships besides her sisters, who she is not shown speaking to at any point in the film. She speaks with Ursula, but Ursula has all the power and only takes advantage of her. She is spoken to by Eric's maid in a maternal manner, but the maid speaks only about her appearance and calls her a "poor thing." Her potential as a mother figure is not explored.

Nausicaa cares deeply for her animal friend Teto, placing his feelings and wellbeing above hers at all times, and gives him chances to escape dangerous situations. Ariel teases her animal companion Flounder for being uncomfortable in dangerous situations, calling him names like "guppy" and telling him not to "get cold fins." She usually places her needs and wants above those of others, even those she is close to. Nausicaa and Asbel begin their relationship as friends, getting to know each other and having conversations. They stand up for and support one another, but Nausicaa does not value her relationship with Asbel, a young man she has just met, above the wellbeing of her people and the Ohmu. Ariel changes many foundational aspects of her life to be with Prince Eric, a young man she has never spoken to and has only seen once before. She gives up her voice, her mermaid identity, and a life with her family and kingdom to be with Eric.

When compared directly, a common theme is evident: Nausicaa is selfless and Ariel is selfish. Nausicaa has agency and makes her own decisions, and Ariel is at the mercy of the power of others. One of these is subjective, based on differing cultural values, and one is of concern in the study of women and power imbalance. To untangle the connections between these two concepts, we must first understand the difference between Japanese group consciousness and the American ethos of independence.

JAPAN AND THE U.S.: GROUP CONSCIOUSNESS VERSUS THE ETHOS OF INDEPENDENCE

So, why do these young women, who are so similar in many regards, act in such drastically different ways? One of the ways to answer this question lies not in gender differences, but in Japanese group consciousness and the American ethos of individuality and independence. In this regard, Ariel's selfishness and Nausicaa's selflessness are not so much reflections of their individual character but rather of the cultures in which they were constructed.

Japanese group consciousness is the prioritization of group harmony over individuals, which produces feelings of loyalty and solidarity amongst the group and has essentially become the foundation of Japanese society (Davies & Ikeno, 2002, p. 195). Nausicaa, despite her acts of rebellion and independence, operates most frequently with the good and harmony of her people in mind. Americans, at least those descended from Europeans, can be contrasted to Asians in the predominance of independence and individualism over interdependence and collectivism (Kitayama et al., 2010, p. 560). According to Henrich, Heine, and Norenzayan, Americans even seem to be "highly unrepresentative of [the human] species (as cited in Kitayama, 2010, p. 560). In this way, Ariel exemplifies the values of independence so highly valued in American society.

Ariel and Nausicaa act not only as reflections of the cultural values from which they were created, but as a means of reinforcing and validating those values to their viewers. Group consciousness and independence play a large role in the formation of the self and how members of a certain society are taught to orient themselves and to treat others. As gender is another large part of this self-formation, these concepts will inevitably form a specific type of intersection between gender and cultural values. It is not my place as an anthropologist to place a value judgment on which one is better but rather to incorporate these ideas into my analysis to see which characteristics of Nausicaa and Ariel are a product of their respective cultures and which ones denote their levels of power and agency, or lack thereof.

IDENTITY, EMPOWERMENT, AND HEGEMONY: THE ENCULTURATION OF YOUNG VIEWERS

One final question may now be asked: are these young women providing beneficial or damaging models of female empowerment for children and teenagers experiencing enculturation, in terms of power and agency, in their respective cultures and time period? Based on my previous analyses of each character,

their actions and motivations, and how they are treated by others, I can comfortably assert that Nausicaa provides a beneficial representation and Ariel does not. Identity is a source of power, and characters from films, especially ones as influential and popular as those from Disney and Studio Ghibli, may serve as models of identity formation and sites of enculturation wherein the characters' actions and the outcomes of those actions are validated in the eyes of the viewer. Nausicaa is given power and agency over her own life, and whether she chooses to use her power to help others or herself is up to the culture in which she was created. Ariel, on the other hand, though she is portrayed as seeking her own desires, is deprived of both power and agency. Any decision she makes is mediated by outside forces like her father, Ursula, and Prince Eric, and she is constantly supervised by either Sebastian or Ursula's eels. Her motivations are also a product of the culture that created her, but whether she is selfish is less important than how much agency she has to enact change within her own narrative.

CONCLUSION

Nausicaa and Ariel both get a movie happy ending, but Nausicaa was given the agency to make her happy ending a reality, and Ariel was only given a happy ending because everything happened to work out due to the power given to those around her. Allowing children to view Ariel's story as the standard for how much power and agency girls and young women should be given over their own lives could be damaging. Children's films in particular are a vehicle for enculturation. Messages such as those in *The Little Mermaid* can be a locus of hegemonic control, reinforcing the position of women in society as objects, commodities, or children with little to no power, who are only valuable as wives. *Nausicaa of the Valley of the Wind* breaks the mold of hegemony, offering audiences a female character who is not passive and powerless. She is a skilled and knowledgeable leader, with men in the village often coming to her for advice, and she does what she believes in, even when others doubt her or think she is wrong. The matter concerning which of these female characters is a better role model based on personality traits and appearance is up for more personal, cultural, and feminist interpretation. But, when considering the power structures portrayed in these films, it is undeniable that the absence of power in *The Little Mermaid's* Ariel is not a healthy model for young children to see as the standard for the level of power young women should be allowed in society. To bypass hegemonic control of power in the discourse of children's entertainment, I would advise viewers, parents, and teachers to think critically

about the nature of gender representation and actively provide children with a model of women's power and agency that looks a lot less like Ariel and more like Nausicaa.

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MAYA REMEDIES AND THEIR INFLUENCE ON MODERN MEDICINE

Sarah Hughes

Abstract

Due to their strong religious beliefs, the ancient Maya society in Yucatán emphasized medicine to maintain spiritual and physical balance within their culture. Historically, the Maya people endured a myriad of ailments, so the expertise of shaman rituals, herbal remedies from the biological landscape, and religious communication allowed the administration of proper treatments. Even though this society experienced epidemics, such as measles and yellow fever, that decimated their population following the Spanish conquest, the Maya benefited from European medicinal remedies and soon incorporated New World methods into their original practices. This revolutionized their remedies, and Maya medicine continued to evolve over time. Their curative foundation has advanced the fields of bioprospecting and pharmaceutical drugs, oncology, women's health, and psychological disorders, among many others.

This paper analyzes Maya society in Yucatán as well as in the larger, complex Maya regions including Belize, Honduras, Mexico, El Salvador, and Guatemala. It investigates the influence of the culture and religion on regional medicine, emphasizing how they incorporated local flora and fauna in their remedies to heal people suffering from various ailments. Specific sections examine conditions they commonly treated, their techniques when practicing their remedial rituals, the history of European influence, and the effects of ancient Maya medicine on modern medicinal practices. The sources used for research on this topic include Diego De Landa's accounts from Yucatán, Maya artifacts, a translation of *The Ritual of the Bacabs*, medicinal journals, and scholarly dissertations and interpretations regarding the impacts of Maya medicine. Ultimately, with thorough investigation of these documents, this paper concludes indigenous Maya medicine contributed to the reform of medicinal remedies in the Americas as well as globally. As researchers continue to decipher and understand their traditional methods, the medicinal sector will continue progressing, and this has potential to lead to more effective treatments.

INTRODUCTION

In July 1562, Diego de Landa, a Franciscan friar from Spain, regarded Maya documentation, religion, remedial practices, and rituals as “works of the devil.” Following the discovery of sacrificial human remains, he ordered the burning of 5,000 idols and 27 hieroglyphic books to show his disapproval. The Franciscan friar wrote in disdain his justification for his actions: “... as we found nothing in these writings that did not contain superstition and lies of the devil, we burned them all, which they regretted to an amazing degree and which caused them great affliction.”¹

Not only did de Landa directly persecute the indigenous people in this single act, but he also destroyed their history, origins, ancestral stories, and documentation of medicinal treatments. Nevertheless, in 1566, Fray Diego de Landa recognized the consequences of his compulsive actions and wrote an apologetic treatise for his assessment of Maya culture, art, and science. In addition to these ethnographic details, he included written accounts of his observations of the most fundamental aspects of Maya society. Specifically, he wrote extensively on the biological diversity in the region and how he marveled the flora and fauna that served medicinal purposes for the Maya people. In his descriptions, de Landa included vivid images of the varieties of plants he observed, certain plant remedies the Maya people applied to various health conditions, and the application of their biological landscape in other aspects of their culture. Even though de Landa almost single-handedly devastated indigenous foundational literature, he eventually recognized the importance of the Maya culture and ultimately gave glory to God in his own mind because he greatly admired the beauty in the region of Yucatán.²

Following the loss of many existing Maya books, Fray Diego de Landa’s apologetic treatise and first-hand observations of the biological basis for healing and health rituals quickly became one of the foundational documents for any scholarly understanding of Maya medicine and the practice of shamanism. Due to its tropical location, the Yucatán peninsula experienced many conditions, illnesses, and diseases, so the plants that the friar mentioned, among hundreds of others, contributed to development of indigenous treatments to aid in improving the symptoms for the affected individuals. The Maya healers applied a plethora of remedies and even used indigenous performances for certain maladies or conditions. As traditional Maya methods following the Span-

1 Fray Diego de Landa and William Gates, “Sec. XLVIII. Of the Plants, Flowers and Trees; of the Fruits and Other Edibles,” in *Yucatán Before and After the Conquest* (Baltimore: Maya Society, 1937), 169, <https://www.sacred-texts.com/nam/maya/ybac/ybac52.htm>.

2 de Landa and Gates, “XLVIII. Of the Plants, Flowers and Trees.”

ish conquest began to incorporate European medical techniques, scientific interest concerning the chemical and biological properties of these Maya plants fueled further research regarding their medicinal properties. Overall, Maya health and ancient remedies served as a fundamental aspect of their culture, and this indigenous knowledge proved significant in its influence of current medicinal practices all over the world.

IMPORTANCE OF HEALTH FOR MAYA CULTURE AND RELIGION

Essentially, medicinal healing in the Maya region combined all aspects of cultural knowledge, including a thorough understanding of the biological landscape, concepts of their religion concerning the origins of illness and disease, astronomical alignments and their sway over diseases and cures, and agriculture; therefore, Maya medicinal healing became a fundamental characteristic of their way of life. Curing ceremonies encompassed both spiritual and empirical elements to counteract ailments involving the body, soul, and cognition.³ To the Maya people, good health indicated balance within their society and resulted from living in accordance with the laws of nature. The body metaphorically represented the world around them, and anatomical structures including the organs, fluids, and bodily processes served as connections and cosmological references. For instance, the Maya people used the biology of the human body and its elements to name locations of their sacred landscape with terms such as “Blood River.” In addition, attachment through umbilical cords represented the physical connection between humans and the universe. The process of creation itself ultimately embodied the process of curing because they believed in the association of healing with birth and death.⁴

The Maya in the extended regions of Chiapas, Mexico also modeled their society around the concept of human life force, or *ch’ulel*. To them, this force symbolized an external energy that connected everything, from the mountains and plants to humans and animals, and other structures. The *ah-men* healers, commonly referred to as shaman by many scholars, restored and maintained balance with this perceived universal force by continually communicating with the gods and treating ailments experienced by the members of their community.⁵

3 Marianna Appel Kunow, *Maya Medicine: Traditional Healing in Yucatán* (Albuquerque: University of New Mexico Press, 2003), 4.

4 Heather S. Orr and Rex Koontz, “Violent Acts of Curing: Pre-Columbian Metaphors of Birth and Sacrifice in the Diagnosis and Treatment of Illness ‘Writ Large,’” in *Blood and Beauty: Organized Violence in the Art and Archaeology of Mesoamerica and Central America* (Los Angeles: Cotsen Institute of Archaeology Press, 2009), 297–98.

5 Kaylee Doemel, “Mayan medicine: Rituals and Plant Use by Mayan Ah-men” (PhD diss., University of Wisconsin-La Crosse, 2013), 5.

Additionally, Maya religion greatly contributed to the concept of healing and medicinal treatments in their society, as diseases and their corresponding treatments correlated with ethical and spiritual concepts. To the Maya, the gods established the agricultural cycle and remained in control over the cosmos, so constant communication with them ensured the administration of proper treatments and the divination of the causes of specific diseases. According to Maya beliefs, the god *Hunab Ku* (“the one and only god”) served as the god of creation, and his son, *Itzamná*, encompassed the role of the lord of heaven and established control over the practice of medicine. *Ixchel*, *Itzamná’s* wife, then became the goddess of women’s health, medicine, and floods; both figures prominently signified the power of divining the causes of diseases and their ultimate treatments.

The four directions, displayed in the Maya cardinal points, also demonstrated the influence of the gods in the medicinal sector. Each individual deity corresponded with a color and different ailments paralleled in terms of color and intensity in accordance with these directions. For instance, the god *Chac* coincided with east and the color red, so in their hieroglyphic text, the glyph “red” or “intense” served as a prefix meaning “severe” with regard to disease. The god *Zac*, associated with north and the color white, also indicated the presence of diseases associated with fainting or epilepsy in traditional literature and Maya understanding.⁶ For instance, the indigenous Maya text *Ritual of the Bacabs*, manufactured during the Spanish colonial period, included discoveries of disease origins as well as their related cures. One specific incantation in the documentation indicated the color and directional deity associations for a type of seizure. In the literature, the Maya called forth their relationship to the origins of this condition:

The words for Jaguar-Macaw Seizure, a demented seizure
Hun Ahau, Hunuc Can Ahau, Can Ahau, they say, is the creator,
Can Ahau, they say, is the darkness when you were born.
 Who is your creator? Who is your darkness?
 You are created by the red *Kin Ahau, Colop U Uich Kin* when you
 were born
 Who is your mother? Who is your lineage? Who was your father?
 You were created by the Red *Ix Chel*, by the white *Ix Chel, Ix Hun*
Ye Ta.
 This is your mother, this is your lineage, this is your father.⁷

6 Francisco Guerra, “Maya Medicine,” *Cambridge Journal of Medical History* 8, no. 1 (1964): 34–35.

7 David Bolles, *A Translation of the Edited Text of Ritual of the Bacabs* (Lancaster, California: Labyrinthos, 2003), 4.

AILMENTS EXPERIENCED BY THE MAYA AND PLANTS USED TO HEAL OR IMPROVE THEM

Throughout history, the Maya societies experienced hundreds of ailments and diseases, especially following the conquest when the Spanish explorers exposed the natives to new diseases. However, the vast array of regional flora and fauna continued to serve as their main source for medicinal treatments, and the Maya learned more about the capabilities and effects of the plants present in their environment. Specifically, healers fixated their attention on both micro-illnesses, known as endemics, which affected individuals or small groups, as well as macro-illnesses, currently referred to as epidemics, that affected entire communities or regional populations. Micro-illnesses, such as common hot and cold conditions, psychiatric disorders, women's health concerns, and cancer, required regular consideration due to the high frequency of people becoming affected. On the other hand, macro-illnesses, including smallpox and yellow fever, demanded more attention, as they affected the entire world following European colonization.⁸

Due to the significant influence of nature in their rituals, Maya shamans established a deep philosophical connection with the plants, and they each applied treatments based on their individual preferences. They often communicated with the botanical organisms; through a deep understanding of their colors as well as the fruits or flowers, the healers determined the organisms' effects for curing. Just like the colors for the cardinal directions and gods, the color or shade of a plant dictated its capability to treat various ailments. For instance, red plants counteracted red ailments, such as blood-related illnesses, rashes, and burns, while yellow plants treated infections in the spleen and liver due to the hue of bile and pus, the secretions of these organs. Blue plants, according to the Maya healers, contained the chemical properties to treat ailments related to the nervous system, while white plants were completely avoided by shaman healers because they believed the color indicated death from the presence of poison.⁹

Shamans often categorized common reoccurring symptomatic illnesses into two groups known as "hot" and "cold" conditions. "Hot" conditions involved hot temperatures and included ailments such as fevers, diarrhea, and vomiting, and the counteractive healing treatment included a "cold" plant in order to shock the body out of the illness.¹⁰ One "cold" remedy common for treating fevers involved the consumption of the *nech bac che* tree, or the "fever tree"

8 Orr and Koontz, "Violent Acts of Curing," 296–97.

9 Doemel, "Mayan medicine," 6.

10 Doemel, 6–7.

according to Maya tradition. By boiling the pleasant-smelling leaves, the plant became soft and the individual bathed in this mixture four to five times until they recovered. After the conclusion of the bathing ritual with the fever tree leaves, the affected individual then consumed chocolate leaves to soothe the remaining symptoms.¹¹

Multiple other plants and trees, such as *Bursera simaruba*, *Lemna minor*, and *Bauhinia divaricata*, similarly served to soothe “hot” conditions like fevers, vomiting, and diarrhea. *Bursera simaruba* (Figure 1), also known as the gumbo-limbo tree, treated fevers and sores, reduced bleeding, and relieved pain. Formal Maya documentation indicated that in treatments, application of the bark and leaves either externally or internally neutralized the symptoms for the patient.¹² *Ritual of the Bacabs* also referenced the gumbo-limbo tree numerous times and indicated that it treated pox viruses and tumors, reduced physical discomfort, and combated the black plague, as noted below:

The words for a burn caused by the black plague.
Biting wood over the humor of the pox.
Gumbo-limbo is the plant used to poultice it.¹³

Current scientific research concerning medicinal uses for the gumbo-limbo tree indicates its ability to serve as a diuretic, diaphoretic to increase perspiration, and laxative; however, its most effective medicinal roles involve treating edema, yellow fever, intestinal infections, and lesions or sores on the skin when applied externally.¹⁴



Figure 1: *Bursera simaruba* bark (left) and leaves (right).

(*Bursera simaruba* bark sourced from Wikimedia Commons, licensed under CC BY-SA 4.0. *Bursera simaruba* leaves sourced from Wikimedia Commons, licensed under CC BY 2.0.)

11 Ryan Amir Kashanipour, “Words of the Wise: Colonial Maya Medicine,” The Recipes Project, last modified 20 August 2013, <https://recipes.hypotheses.org/2202>.

12 Doemel, “Maya medicine,” 10.

13 Bolles, *A Translation of the Edited Text of Ritual of the Bacabs*, 153–55.

14 “*Bursera simaruba*,” Plants for a Future, accessed August 2, 2019 <https://pfaf.org/user/Plant.aspx?LatinName=Bursera+simaruba>.

Lemna minor, commonly known as duckweed, reduced the effects of fevers as well as colds, inflammation, and measles through the application of its extracts.¹⁵ Medicinal uses for this plant today include treating measles, fluid retention, urination difficulties, and common colds.¹⁶ Additionally, *Bauhinia divaricata* possesses chemical properties to assist in the treatments of fevers, inflammation of the neck and pleural tissue in the lung, and intestinal infections (Figure 2).¹⁷



Figure 2: *Lemna minor* leaves and roots (left) and *Bauhinia divaricata* flowers and leaves (right). (*Lemna minor* courtesy of Graham Calow and <https://www.naturespot.org.uk/>. Reprinted with permission. *Bauhinia divaricata* sourced from Wikimedia Commons, licensed under CC BY 2.0.)

“Cold” conditions for the Maya involved cold temperatures and included ailments such as cramps, constipation, headaches, and paralysis. Shocking the system with hot or spicy remedies typically reduced the effects of these conditions, and plants such as *Sida acuta*, *Scirpus validus*, and *Hibiscus tiliaceus*, possessed the capabilities to accomplish this. The common *Chichibe* weed, known as *Sida acuta* (Figure 3), treated headaches, skin conditions, stomach complications, asthma, and seizures. It also contained antibacterial properties to fight bacterial infections and diseases.¹⁸ Currently, medicinal uses of *Sida acuta* include reducing



Figure 3: *Sida acuta* flower and leaves. (Sourced from Wikimedia Commons and created by Jason Hollinger. Licensed under CC BY 2.0)

¹⁵ Bolles, 17.

¹⁶ “Lemna Minor,” Plants for a Future, accessed August 4, 2019, <https://pfaf.org/user/Plant.aspx?LatinName=Lemna+minor>.

¹⁷ Bolles, 13.

¹⁸ Bolles, 11.

fevers and treating wounds, and pharmacological studies indicate its effectiveness to combat infectious bacteria, such as *Staphylococcus aureus* and *Escherichia coli*.¹⁹

Scirpus validus (Figure 4) assisted with the treatment of hiccups, tuberculosis, and intestinal infections. The roots also contained chemicals that reduced bleeding and assisted with urination.²⁰ According to scientific study, the extracts from the roots serve as an effective diuretic and hemostatic agent, so the indigenous Maya uses parallel with current applications.²¹ To counteract headaches and toothaches, the Maya used *Hibiscus tiliaceus* (Figure 4), which also lowered blood pressure and prevented infections in patients treated.²²



Figure 4: *Scirpus validus* stalk (left) and *Hibiscus tiliaceus* flower and leaves (right)

(*Scirpus validus* sourced from Wikimedia Commons and created by David Stang. This image is licensed under CC BY-SA 4.0. *Hibiscus tiliaceus* sourced from Wikimedia Commons and created by Tau'olunga. Licensed under CC BY-SA 2.5.)

In addition to “hot” and “cold” conditions documented in Maya literature, other conditions, including psychiatric disorders, issues in women’s health, and cancer, also occurred and required treatment from the shamans. Documented as “*nervios*” in traditional literature, psychiatric health conditions encompassed a state of unrest with the body, specifically with the mind, causing conditions such as depression, anxiety, and mood disorders. Symptoms for these conditions included loss of appetite, anxiety, racing heart, feelings of despair, and weakness, and common shamanistic treatments often involved oral administration of plants. The Maya believed inhalation of extracts, massages, and bathing with aromatic species also improved the psychological status of the affected individual.

¹⁹ “Sida Acuta,” CAB International Invasive Species Compendium, December 18, 2009, <https://www.cabi.org/isc/datasheet/49985>.

²⁰ Bolles, *A Translation of the Edited Text of Ritual of the Bacabs*, 12.

²¹ “Scirpus Validus,” Plants for a Future, accessed August 4, 2019, <https://pfaf.org/user/Plant.aspx?Latin-Name=Scirpus+validus>.

²² Bolles, 16.

Approximately 92 species documented in the remaining primary Maya literature treated these specific conditions. Some common species used include *Artemisia ludoviciana*, *Casimiroa edulis*, *Bougainvillea spectabilis*, *Cyperus esculentus*, and *Hibiscus tiliaceus*. The leaves of *Artemisia ludoviciana* counteracted “nervios” and mood disorders, the bark of *Casimiroa edulis* soothed “nervios,” *Bougainvillea spectabilis* flowers treated sadness in children, and the roots of *Cyperus esculentus* served as a remedy for depression (Figure 5).²³ In addition, the leaves of the species *Hibiscus tiliaceus* (see Figure 4) contain methanol extract, so this plant possessed antidepressant properties for the Maya.



Figure 5 : Leaves of *Artemisia ludoviciana* (top left), bark of *Casimiroa edulis* (top right), *Bougainvillea spectabilis* flowers (bottom left), and roots of *Cyperus esculentus* (bottom right)

(*Artemisia ludoviciana* courtesy of Mel Harte, Discover Life from the University of California, Berkeley. *Casimiroa edulis* courtesy of SelecTree. “*Casimiroa edulis* Tree Record.” 1995–2019. <https://selectree.calpoly.edu/tree-detail/casimiroa-edulis>. This image is in the public domain in the United States. *Bougainvillea spectabilis* sourced from Wikimedia Commons and licensed under CC BY-SA 3.0. *Cyperus esculentus* sourced from Wikimedia Commons and courtesy of the Auckland Museum. Licensed under CC BY 4.0.)

Conditions involving women’s health also required significant treatment, as these issues occurred frequently with childbirth, cramping, menstruation, menopause, and regulation of hormones such as estrogen and progesterone. In total, 48 plants documented in traditional Maya literature influenced this par-

²³ Laura Guzmán Gutiérrez, Ricardo Reyes Chilpa, and Herlinda Bonilla Jaime, “Medicinal Plants for the Treatment of ‘Nervios,’ Anxiety, and Depression in Mexican Traditional Medicine,” *Brazilian Journal of Pharmacognosy* 24, no. 5 (September 2014): 591–608, doi:10.1016/j.bjp.2014.10.007

ticular area of treatment, including species such as *Campyloneurum*, *Clidemia setosa*, *Dioscorea communis*, *Hibiscus rosa-sinensis*, *Neurolaena lobata*, and *Sida rhombifolia*. For the Maya, *Campyloneurum* treated body aches, *Clidemia setosa* aided in regulating fertility, *Dioscorea communis* counteracted anemia and provided a source of iron, *Hibiscus rosa-sinensis* served as a remedy for postpartum hemorrhaging and nerves, *Neurolaena lobata* treated vaginal infections, and *Sida rhombifolia* helped with labor pains (Figure 6).²⁴

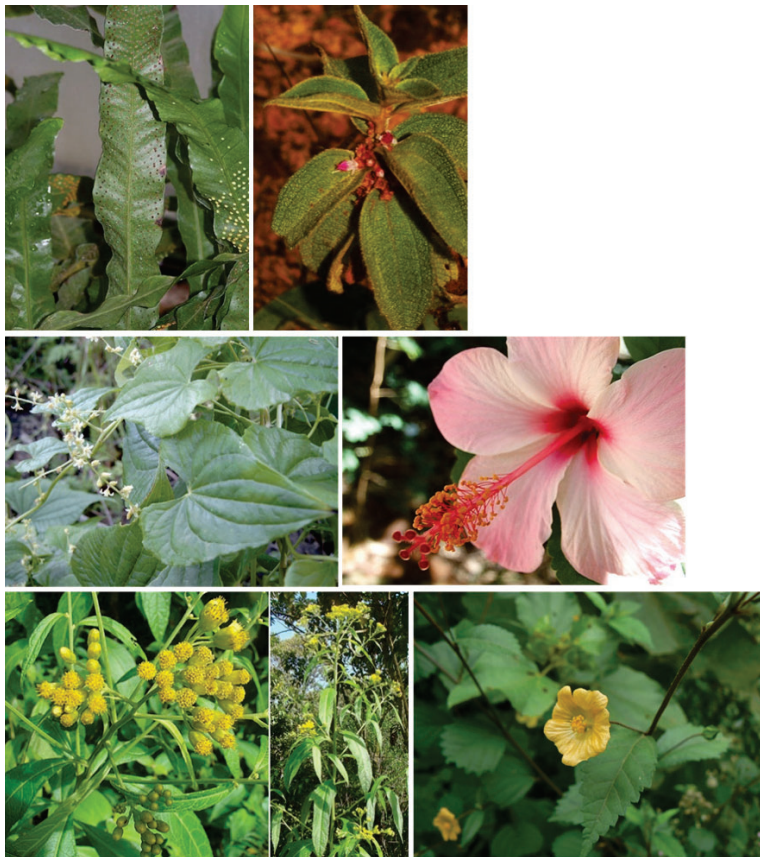


Figure 6: *Campyloneurum* (top left), *Clidemia setosa* (top right), *Dioscorea communis* (middle left), *Hibiscus rosa-sinensis* (middle right), *Neurolaena lobata* (bottom left), and *Sida rhombifolia* (bottom right) (*Campyloneurum* sourced from Wikimedia Commons and licensed under CC BY-SA 3.0. *Clidemia setosa* sourced from Creative Commons and created by Barry Hammel. This image is licensed under CC BY-NC-SA 2.0. *Dioscorea communis* sourced from Wikimedia Commons and licensed under GNU Free Documentation License. *Hibiscus rosa-sinensis* sourced by NC State Extension. This image is in the public domain. *Neurolaena lobata* courtesy of Dick Culbert and licensed under CC BY 2.0. *Sida rhombifolia* sourced from Wikimedia Commons and licensed under CC BY-SA 2.0.)

24 Joanna L. Michel, "Medical Ethnobotany of the Q'eqchi' Maya: Perceptions and Botanical Treatments Related to Women's Health" (PhD diss., University of Illinois at Chicago, 1994), 320–21.

Cancer also affected the indigenous Maya population, and they once again turned to plants to serve as remedies to improve symptoms the sufferer experienced. *Capsicum annuum*, another type of documented Maya remedial plant and the broad species name for a variety of peppers, also had the ability to treat tumors. In traditional Maya culture, this plant treated many ailments including vomiting, blistering, and delays in childbirth. When the neurotoxin *capsaicin* found in these plants entered the body and came into contact with tissue cells, the patient's body assumed there was an injury present due to the plant's ability to interfere with sensory neurons. When this contact continued for an extended period, the individual experienced less pain.²⁵ The extracts of *Aeschynomene fascicularis* root bark and *Bonellia macrocarpa* stem and root bark also contributed to cancer treatments due to their cytotoxic characteristics (Figure 7).²⁶



Figure 7: *Capsicum annuum* (top left), *Aeschynomene fascicularis* root bark (top right), and *Bonellia macrocarpa* stem and root bark (bottom)

(*Capsicum annuum* sourced from Wikimedia Commons and created by H. Zell. This image is licensed under GNU Free Documentation License. *Aeschynomene fascicularis* from People and Plants of Africa and licensed under CC BY 3.0. *Bonellia macrocarpa* from Field Guide: Flowering Trees of the World and created by Stefano. This image is licensed under CC BY-NC-SA 2.0.)

²⁵ Doemel, "Mayan medicine" 14–15.

²⁶ Edgar Caamal-Fuentes, et al. "Screening of Plants Used in Mayan Traditional Medicine to Treat Cancer-like Symptoms," *Journal of Ethnopharmacology* 135, no. 3 (2011): 719–24.

Through scientific study, these plants and others, used for psychiatric health, women's health, and cancer, show promising research indicating verifiable impact. Further examination of these species and their effects on modern medicinal treatments can be found in the section titled, "Impact of Maya remedial Methods on Modern Medicinal Practices."

DISEASES AND EPIDEMICS FOLLOWING THE SPANISH CONQUEST

Along with the ailments commonly experienced before European contact, the Spanish conquest introduced new diseases to the Maya region, which caused catastrophic demographic population losses. In addition to environmental afflictions, Spanish colonization caused overuse of the land, overpopulation, and warfare that impacted the declining population rate; however, diseases significantly affected the Maya due to their inability to combat these new viruses.²⁷ From 1517 to 1821, Yucatán experienced two pandemics that spread across the world and six epidemics that affected the local regions. During the first period from 1517 to 1579, multiple epidemics ravaged the Maya population following the initial European conquest efforts in the Caribbean. Before contact with the Spanish, the Maya population of the Yucatán peninsula thrived at around 800,000; however, after this first introduction to new afflictions, the population declined to 140,000.²⁸ These specific epidemics, known as virgin soil epidemics, circulated due to the previously unexposed indigenous people coming into contact with Old World ailments, which debilitated communities and led to population losses by as much as 75%.²⁹

The second period of peak demographic decline due to illness occurred from 1580 to 1729, when epidemics consistently arose in a cyclical pattern, which indicated the rise and fall of disease during this time.³⁰ Specifically, in 1648, an epidemic of yellow fever combined with other circulating fevers and pains sharply decreased the population again. The size of the Yucatán colony declined by 10%, from 140,000 to 127,000 people in this 150-year span; nevertheless, despite the periods of crisis, the region also experienced waves of stability.³¹

Thirdly, from 1730 to 1821, chronic epidemics including yellow fever, measles, and the plague once again swept the Maya territories and decimated indigenous populations. From 1726 to 1729, measles and yellow fever spread

27 Ryan Amir Kashanipour, "A World of Cures: Magic and Medicine in the Colonial Yucatan" (PhD diss., University of Arizona, 2012), 174.

28 Kashanipour, 45–46.

29 Kashanipour, 49.

30 Kashanipour, 47.

31 Kashanipour, 50–51.

throughout the region, followed by two more epidemics of yellow fever in 1761 and 1799. The plague also caused a crisis between 1809 and 1810, which then triggered a downward spike for Maya and Spanish inhabitants.³²

Throughout these three periods of disease from 1550 to 1817, the Maya population experienced both rapid growth and demographic decline based on the afflictions they faced. Rather than linearly decreasing, the death rate fluctuated as diseases passed and as the environment and population resistance to diseases reached stability (*Figure 8*). Despite Spanish officials' documentation that the poorer people experienced the highest rate of disease, diseases affected all individuals, even those in power. Many Spanish and Maya leaders of prominence in their communities died due to these illnesses as diseases continued to pose a consistent threat.³³ Even though shamans and European physicians applied their expertise to the dying populations, the remedies they applied often proved ineffective, and the lack of shamans in different areas due to death became a severe disadvantage in combating illnesses.³⁴

Population of the People of Yucatán from 1550-1817



Figure 8: Population of the Indigenous People of Yucatán from 1550–1817. (Image courtesy of Ryan Kashanipour, “A World of Cures: Magic and Medicine in the Colonial Yucatán,” p. 48. Reprinted with permission.)

ROLE OF SHAMANISM AND CURING IN MAYA SOCIETY

Traditionally, shamanism, or the process of acquiring a deeper understanding of the body by treating ailments with natural remedies, played a significant

³² Kashanipour, “A World of Cures,” 56.

³³ Kashanipour, 47–48.

³⁴ Kashanipour, 176.

role in maintaining the health of the Maya people in the region. These ritual specialists held elite positions in their society, as their main responsibility involved continual communication with the gods to receive answers about the proper treatments to perform. Due to the significant influences of the environment, religion, and balance on Maya culture, the shamans remained connected to their spirituality and incorporated a vast collection of flora and fauna into their medicinal treatments. Their main roles included recognizing and treating ailments their people endured, and, depending on their knowledge and experience, they possessed varied abilities to treat different conditions.³⁵

Shamans also served as warriors that battled and defeated illnesses affecting their people. In the Quiché *Popol Vuh*, this metaphoric concept of the identification of a condition and its active defeat by the curer is shown through the *Lords of Xibalba*, or characters in the culture that embodied the concepts of disease and suffering. Eventually, these Lords suffered defeat and decapitation from two warrior healers known as the *Hero Twins*. These two mythological demigods not only signified the power of healing in Maya society, but they also served as a symbol of new life as demonstrated by the Maya creation story. The Maya believed humans originated from war, defeat, and formal execution, so when the shamans directly approached physical diseases with indigenous rituals, the process of healing portrayed both rebirth and renewal.³⁶ The *Hero Twins* became central characters depicted in Maya writing.

In addition to their symbolic significance, shaman healers also served as elite leaders in their societies, and due to this role in the hierarchy, they greatly impacted their civilizations. The shamans served as members of the priestly hierarchy because of their training and responsibility of communicating with the gods. These individuals' education included reading, writing, and arithmetic, which encompassed the agricultural sector, historical knowledge, an understanding of astronomical principles, and therapeutic ability.³⁷ Ranked for their varying aptitudes, shamans specialized in different conditions. Socially, Maya society also ordered shamans according to a hierarchy. Treating regional or macro-illnesses granted shamans the highest authority, while applying remedies for their own personal ailments ranked lowest. The paramount principal shaman healer, represented by a massive jaguar, served as the most significant position. This specific individual held the special dualistic role of communicating with the ancestral gods while also presiding over their inferiors.³⁸

35 Orr and Koontz, "Violent Acts of Curing," 300.

36 Orr and Koontz, 300–01.

37 Guerra, "Maya Medicine," 33–34.

38 Orr and Koontz, 298.

Due to the deep connection between the Maya people, their religion, and the biological landscape around them, communication with the gods became the main foundation for the shaman's healing techniques. Treatments encompassed the body, spirit, and mind, and in some circumstances, shamans established their role through dreams and revelations. These medicinal callings in dreams and revelations secured a connection to the supernatural world as well as to mystic beings known as jaguars, or *Balams*. Through gifts of divining stones known as *sastuns*, these *Balams* had the ability to establish a connection with shaman leaders and enlighten them about how to apply remedies to the ill.³⁹ The gods also used these translucent *Balam* crystals to guide the healers in the diagnosis of the affected person and reveal what plants would cure or improve the individual's condition.⁴⁰

When curing macro-illnesses, shamans conversed with the gods and received two different types of divinations. First, a trance- and divination-related insight granted the meditating healer a protected, transitional state where the earthly world connected with the spiritual world, and medicinal plants often assisted in this process. They also received diagnosis-related divinations, which involved the gods identifying the disease and instructing a course of action.⁴¹

As a result of the nature of viruses and bacterial illnesses, a huge variety of ailments affected the Maya people, so the practice of shamanism included hundreds of remedial methods and medicinal rituals. The Maya practiced the ritual of human sacrifice to please the gods, so they possessed an extensive knowledge of human anatomy and the structure of organs. This acquired information also assisted in medical practices, as the shaman-priests applied this anatomical knowledge to the plant remedies they documented.⁴² In order to treat macro-illnesses that made the greatest impact on their people, the curing ritual began with a snake dance performance to summon the effects of lineage and authority. The shaman then ceremonially transformed into an animal predator to assert a sense of power against the disease and identify the condition through water purification and bloodletting. Further ceremonies followed the diagnosis, and commemoration efforts ensued to reinforce the healer's abilities.⁴³ In the case of macro-illnesses caused by malevolent spirits, organized violence against the destructing individual also occurred to signify physical combat and future destruction of the ailment.⁴⁴

39 Kunow, *Maya Medicine*, 1.

40 Doemel, "Mayan medicine," 5–6.

41 Orr and Koontz, "Violent Acts of Curing," 299.

42 Guerra, "Mayan Medicine," 38.

43 Orr and Koontz, 299–300.

44 Orr and Koontz, 301.

Additional remedial rituals focused specifically on the otherworldly, necromantic aspects of healing as shamans channeled the gods and actively engaged in performances to rid the body of all evil. According to their religious beliefs, some health afflictions indicated possession from demented, supernatural forces, and the shamans combated these “demons” with rituals so the individual could overcome them. For this practice, four main types of shaman, known as *uaay*, *Ah pul yaah*, *Ah cunal*, and *Ah mack-ik*, actively worked to heal using specific spiritual customs. *Uaay* individuals directly consulted with the devil, afflicted natural disasters, spread disease, and converted their physical being into an animal. In addition, the *Ah pul yaah* afflicted illness and transmitted it to their enemies because they believed disease occurred from the maleficent acts of others. *Ah cunal* healers practiced rituals that revolved around spells, so the Maya considered them enchanters that removed illnesses from the body. Finally, *Ah mack ik* healers affected the winds and their directions to control the spread of pathogens.

Not all shamans performed these indigenous rituals, but even the *Ah tzac*, or general healers, and *medicos en general y cirujanos*, or surgeons, applied superstitions and herbal remedies in their cures; to them, hallucinogenic medicine involving communication with the gods, as well as herbs, maintained their fundamental goal of physical and spiritual balance.⁴⁵ For instance, *Ritual of the Bacabs* includes many passages of ceremonies, including one specific example of spells used to relieve an individual’s evil possession:

Snake in a person’s stomach.
 First *Hun Ahau*.
 I am standing to trap you, you demented child of a woman.
 In four days then you return.
 In four days then you move, you return
 because of your mother, because of your father,
 you, demented child of a woman, demented darkness.
 Soon then I will vigorously bruise you, you red-tainted bowel,
 You are born it seems to the heart of the wind, you red rattlesnake.
 Then certainly you descend with white *Anom*, the white person.
 Who is my symbol?
 Then I vigorously bruise you *Hunac Ah Thal*.
 I casted a spell on *Hunac Ah Chel*.
 I casted a spell on *Hunac Ah Cop*.

45 Kashanipour, “A World of Cures” 167–68.

I casted a spell on the day *Hunuc Can Ahau*.
 You bear the demented creation, the demented darkness.
 Amen.⁴⁶

EVOLUTION OF MAYA MEDICINE FOLLOWING COLONIZATION BY THE SPANISH

Following the Spanish conquest of the Yucatán region in the sixteenth century, Europeans developed a fascination with Maya medicinal practices and began documenting their remedies. Once they arrived in the Yucatán region, the Europeans noted the rich soil and biodiversity, quickly realizing that hundreds of plants could be used in medicinal treatments.⁴⁷ The Spanish determined that the colonial world suffered from many diseases and conditions; to understand more about Maya treatments, they relied on the contemporary natives of the region to acquire knowledge about botany and medicine. Essentially, Maya medicinal knowledge and documentation provided a foundation for knowledge of illnesses and cures, so Europeans often used Maya terminology to describe their established remedial tendencies.⁴⁸ As the two ethnic groups became integrated, the Maya people incorporated Western traditions into their daily culture. Within a decade after the conquest, Maya scribes transitioned their writing system from a logo-syllabic text to a more complex system that incorporated Latin-based themes.

Beginning in the 1500s, Europeans used knowledge from the Maya and produced treatises for figures of authority in Spain that included surveys of the botanical landscape as well as the medicinal properties of plants used by the Maya and other Mesoamerican peoples.⁴⁹ Three of these famous documents sent to the Crown and the clergymen include the Aztec scholar Martín de la Cruz's *Libellus de Medicinalibus Indonum Herbis* in 1522, Francisco Hernandez's *Histori de las plantas de la Nueva España* in 1572, and Bernadino de Sahagún's *Historia general de las cosas de Nueva España* in 1582. As time passed, these medicinal documents circulated throughout the Spanish colonial territory, and the concept of indigenous ritual healing increased in popularity. This encouraged literate Maya to continue writing medicinal documentation, and the interest in herbal techniques among the Spanish increased. Written records of healing quickly multiplied in the region, and the two cultures slowly

⁴⁶ Bolles, *A Translation of the Edited Text of Ritual of the Bacabs*, 128–30.

⁴⁷ Bolles, 234.

⁴⁸ Bolles, 232.

⁴⁹ Bolles, 239–240.

synthesized aspects of their healing practices.⁵⁰

During Spain's movement to spread Catholicism and convert non-believers, other Franciscan friars in the eighteenth century also dramatically influenced the spreading of Maya medicinal rituals. Much like previous explorers and doctors that analyzed the region, the Friars took interest in the Maya system of medicine and incorporated their Enlightenment foundation to further understand the remedial techniques. For instance, Pedro Beltrán de Santa Rosa published a dictionary titled *Arte del Idioma Maya* that analyzed over 200 indigenous afflictions and provided a perspective on the traditional Maya treatments applied.⁵¹ Other primary literature, such as *Ritual of the Bacabs*, dating back to the late eighteenth century include evidence of Enlightenment influence on Maya writing and belief in the power of Jesus when afflicted by various medical conditions. For example, the repeated usage of both "Jesus Mary" and the word "amen" in this document indicate the European impact on Maya religion and medicine as they incorporated it into their lifestyle:

Yax ci comes out then, it seems, [from] the breast sprinkling his blood.
 Frightened, oh, is your vigor when it falls.
 Jesus Mary! Your breath takes away, oh, your vigor when it falls.
 To the east your breath is stopped.
 Jesus Mary! Your breath takes away, oh, your vigor when it falls.
 To the north your breath is stopped, oh.
 Jesus Mary! Your breath takes away, oh, your vigor when it falls.
 To the west your breath is stopped.
 Jesus Mary! Your breath takes away, oh, your vigor when it falls.
 To the south your breath is stopped.
 The malignant creation, the malignant birth,
 is well laid out then it seems.
 I do not move it.
 Covered in the *Chuu'en*, covered in the clouds,
 covered on the ground, covered in the wind,
 covered by day, covered by night,
 covered before me, covered behind me,
 covered all around.
 It is covered, oh, in the end.
 Amen.⁵²

50 Kashanipour, "A World of Cures," 241.

51 Kashanipour, 233–34.

52 Bolles, *A Translation of the Edited Text of Ritual of the Bacabs*, 153–55.

Another manuscript known as the *Chilam Balam de Kaua*, written by a Maya shaman named Chilam Balam, or Jaguar Priest, applied this European influence to document 330 herbal treatments, including common ailments such as headaches, fevers, cancer, and difficulties with labor (*Figure 9*).⁵³ In the Maya region, practitioners used their knowledge for Spanish administrators to protect their land and status. They readily formed alliances and treated those in need, which began the concept of legitimacy in regard to practicing formal medicinal procedures.⁵⁴

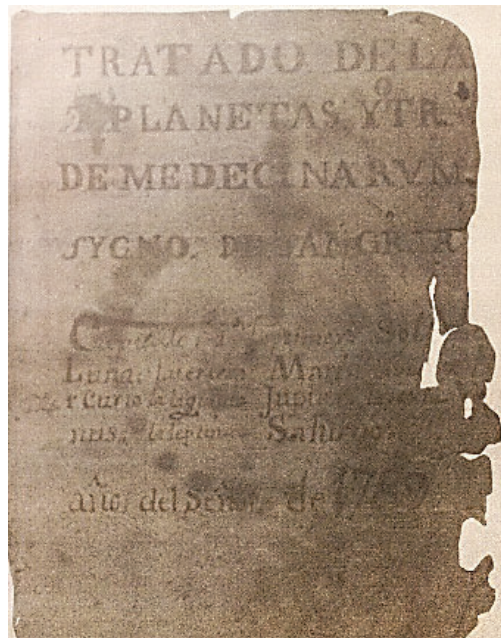


Figure 9: Title Page of the *Chilam Balam de Kaua*, a 1789 shaman book documenting hundreds of treatments. (Image courtesy of Dr. John Chuchiak IV.)

With more journals published about the medicinal aspects of such a diverse biological landscape, Spanish interest in Maya remedies increased and often prompted the Crown to request formal investigations of the region. From 1775 to 1785, the Spanish doctor and surgeon Bartolomé Guijón received an order to survey the Campeche region for a remedy for yellow fever, a growing concern in Spain. During his exploration, he learned that the *Chooch* and *Kople* trees counteracted aches and fevers for the Maya people, and this proved to be

⁵³ Kashanipour, "Words of the Wise."

⁵⁴ Rebekah E. Martin, "The Practice of Medicine in Yucatán and the Southern Gulf Coast, 1600–1830" (PhD diss., Pennsylvania State University, 2016), 2.

a helpful remedy for the deadly disease.⁵⁵ Conclusively, these native medicinal cure books on regional biodiversity and its applications to combat disease not only brought both the Maya and the European cultures together, but also decreased the impact of social, political, and ethnic barriers that divided the two societies.⁵⁶

As medicinal practices transitioned from ancient, traditional methods to more modern, standardized methods of treating patients in the nineteenth century, Maya medicinal roles experienced a shift. Women in particular began taking on more significant medical leadership as the curing roles in the region transitioned. Substantial European reform began to impact public health and the medical sector, which also introduced the issue of the legitimacy of modern medical care.⁵⁷ The Spanish colonial empire continued to instruct administrators of authority to maintain control over the colony; when they observed the Maya people continuing to apply only indigenous treatments, the Crown debated whether to institute regulations to ensure the validity of medical cures. However, this remained a complex issue due to the diversity of native people practicing indigenous curing in the region. Despite Spanish efforts to govern the medical sector, legal and social legitimacy remained a concern. This apprehension stemmed from the varied levels of education completed by each practitioner; the occurrence of foreign physicians that practiced outside their licensures; *Curanderos*, or Maya folk healers, continued to implement experimental herbal remedies. Social legitimacy also affected the region because positive social relationships between the *Curanderos* and their community granted them authority to continue practicing. The Spanish administration offered little flexibility and often became biased in their decisions if the result suited their own interests.⁵⁸

Present-day medicine in the Yucatán region also reflects conflicting opinions, as it incorporates traditional native methods with new Westernized methods as reported by many medical professionals, including Marianna Kunow from Tulane University. During her time observing the practices of the natives in the Maya town of Pisté in 1996, she determined that curing continued to involve local plants, combinations of body, spirit, and mind, as well as connections with supernatural forces. The Maya of Pisté valued tradition and maintained connection with their past, while at the same time using new medicinal treatments for their patients. According to Kunow, Maya descendants in the region practiced prayer, massage, plant medicine, and magical remedies, and

55 Kashanipour, "A World of Cures," 236–37.

56 Kashanipour, 231.

57 Martin, "The Practice of Medicine in Yucatán and the Southern Gulf Coast, 1600–1830," 191.

58 Martin, 189–90.

they incorporated modern techniques into their healing rituals, which led to local healers playing a prominent role in their society.⁵⁹

Depending on the individual practices, Kunow noted remedial tendencies and treatments varied across regions. For instance, one of the healers, Don Aldo, possessed a vast range of knowledge regarding Western techniques, and, Kunow observed, he treated a fever with both aspirin tablets and two plants known as *chacah* and *zacate de limón*. Additionally, other practitioners in the region demonstrated the ability to treat congestion with both Vick's VapoRub and the leaves of a plant named *Ricinus communis*.⁶⁰ Ultimately, as with the period of time following the Spanish conquest, Maya cultures today continue to remember their past while modernizing their treatments. Spirituality continues to serve as the foundation for their health traditions, but now, men's and women's roles in the health field have begun to transition since women are practitioners as well.⁶¹ As medicinal practices continue to advance, Maya traditions may evolve as well, but their heritage will remain influential in their medical practices.

IMPACT OF MAYA REMEDIAL METHODS ON MODERN MEDICINAL PRACTICES

Due to ongoing Western interest in Maya remedies, the completion of more research over time and further understanding of ancient techniques will continue to impact modern medicine.

Bioprospecting and New Pharmaceutical Drugs

One new advance using traditional Maya treatment methods is bioprospecting, which allows the creation of new drugs by pharmaceutical companies. Bioprospecting refers to evolutionary use of natural resources, specifically regarding how ethnosciences impact the agricultural and medicinal sectors. Through exploitation and continual interaction with the ecosystem, bioprospecting continues to evolve human societies as further scientific investigations determine additional properties of plants, minerals, and organisms. Natural biochemical sources provide opportunities for advancing business, discovering cures for disease, and improving pharmaceutical drugs, so this field of research experiences continual expansion and growth.⁶²

59 Marianna Kunow, "Curing and Curers in Pisté, Yucatán, México" (PhD diss., Tulane University, 1996), 2–3.

60 Kunow, "Curing and Curers in Pisté, Yucatán, México," 74–75.

61 Kunow, 76.

62 Isabel Martínez Solís, "Ethnobotany and Ethnopharmacology, the First Step towards Bioprospecting," *Journal of Biodiversity, Bioprospecting and Development* 2, no. 1 (2014).

Bioprospecting drastically revolutionized pharmaceutical companies following the technological revolution, and plants still represent a critical source for drugs and substances holding commercial value. Chemical and biological research done within the region and beyond constantly reveals new information about the molecules and structures of plant extracts, so endless possibilities exist for discovering new medicines. Therefore, bioprospecting efforts for advancing medicine and controlling diseases continually receive worldwide attention. Due to the extensive biodiversity present in the ancient Maya territory in Mexico, the region remains a hotspot for ethnobotany and ethnopharmacology as scientists discover new organisms and apply indigenous remedies for modern medicinal uses.⁶³ However, many native Maya societies argued against this concept because of its detrimental effects to the landscape and their heritage.

For contemporary Maya people, religion, culture, and medicinal practices revolve around their biological landscape and ecological community. Their society still views the environment as sacred, so with an increase in bioprospecting research in the region, the Maya people desire protection for their territory. As the bioprospecting industry progresses, the region experiences drastic alterations from major companies exploiting Maya resources. In response, the Maya people originally decided to create local institutions to monitor the use of their resources. Although this succeeded for several years, global governance eventually succeeded in gaining entrance to the Maya region to access the medicinal plants.⁶⁴

One proposal from the U.S. National Institute of Health's International Cooperative Biodiversity Group (ICBG) drug discovery project specifically affected the Chiapas Highland Maya, as one of six \$2.5 million prospects included the use of Maya knowledge to test plants for potential incorporation into new pharmaceutical drugs. Although their method strategically emphasized naturalistic tendencies, the ICBG looked beyond the cultural contributions of the indigenous techniques. This prospect granted the U.S. government access for five years, and it relied on the knowledge of the native people to help the company screen plants for medicinal use.⁶⁵ Overall, the conflict over protection of indigenous lands versus required legalization to access natural resources for the progression of science continues to be a global issue still debated today.

63 Martínez Solís, "Ethnobotany and Ethnopharmacology."

64 Ronald Nigh, "Maya Medicine in the Biological Gaze: Bioprospecting Research as Herbal Fetishism." *Current Anthropology* 43, no. 3, (2002): 451.

65 Nigh, "Maya Medicine in the Biological Gaze," 460–61.

Cancer Treatments

Another influence of Maya medicine on modern day practices involves advancements in cancer treatments and herbal impacts for cytotoxic activity. A 2011 study titled “Screening of Plants Used in Mayan Traditional Medicine to Treat Cancer-like Symptoms” evaluated plants documented and used in traditional Maya medicinal practices to determine their ability to treat cancer-like symptoms. Another objective of this experiment included an analysis of extracts and their ability to impact the life of cytotoxic cells. To complete this analysis, the scientists obtained 51 plants described in Maya ethnobotanical sources and macerated them with methanol to remove the plant extracts. Using a 96-well tissue plate assay, the scientists tested the cytotoxicity, or ability to destroy cells, of the extracts in seven different cancer cell sources and then applied spectrophotometry to determine cell viability. The study found that the *Aeschynomene fascicularis* root bark extract increased cytotoxic activity on cervix adenocarcinoma (Hela) and nasopharynx carcinoma (KB cells), and *Bonellia macrocarpa* stem and root bark extracts demonstrated similar activity on KB cells. The researchers concluded that the root bark successfully increased the death rate of the cancerous cells analyzed in the assay. To determine further molecular properties of both plants, further studies will explore whether these extracts possess the capability to be applied to a cancer treatment research study.⁶⁶

Capsaicin in peppers also has the ability to treat postoperative cancer patients. When patients undergo an operation to remove a tumor, substance P, located in nerve endings, undergoes a chemical release due to the internal injury and causes pain in the affected region. However, the neurotoxin capsaicin from *Capsicum annuum* comes in contact with tissue cells to alter the sensory neuron function, so the body assumes an injury is present.⁶⁷ Following surgery, cancer patients often receive a cream known as Zostrix, and its main ingredient is capsaicin, which blocks pain signals traveling to the brain. Balm application four to five times daily minimizes pain for the patient, and studies continue to be conducted to further determine capsaicin’s potential for treating cancer and other ailments.⁶⁸

Advancements in Women’s Health Treatments

In addition to cancer research, ancient Maya remedies also provide guidance for advancement in treatments regarding women’s health and childbirth.

66 Caamal-Fuentes, et al. “Screening of Plants,” 719–24.

67 Doemel, “Mayan Medicine,” 14–15.

68 Memorial Sloan Kettering Cancer Center, “Capsaicin,” last modified October 30, 2017, <https://www.mskcc.org/cancer-care/integrative-medicine/herbs/capsaicin>.

Three experiments conducted by Joanna Lynn Michel at Tulane University specifically investigated 48 plants documented in Maya literature as remedies for women's health issues. Of these 48 species, 19 samples showed promise and underwent further screening to determine their remedial properties. For each of the studies, approximately 100 to 200 grams of ground, dried, and sifted plant material from the 19 samples was combined with 95% ethanol, and a sterile cotton plug extracted the chemicals from inside each plant.⁶⁹ Biological assays for estrogen, serotonin, progesterone, and cyclooxygenase inhibition then were tested for each of the plant extractions.⁷⁰

The study concluded that 45% of the analyzed plants indicated activity in the estrogen binding assays; 68% indicated activity in the serotonin binding assays; none of the plants showed activity in the progesterone binding assay; and 100% indicated activity in the cyclooxygenase inhibition assay. This activity by the different species ultimately indicated potential ability of these plants to influence hormones. The *Piperales* species showed 100% involvement in the serotonin assay, suggesting this plant may demonstrate healing ability for this hormone (*Figure 10*).⁷¹ Further studies of these plants will determine the safety of these extracts when injected into the body and their effectiveness if incorporated into pharmaceutical drugs to assist in hormonal therapy for menstruation, pregnancy, or even depression.⁷²

Overall, the goals of this study included investigating the potential medicinal value of indigenous Maya plants as well as providing a supportive educational tool for women in the region, as women's health remains a largely undiscussed topic. Conditions including pregnancy, menstruation, and menopause served as the topic for the study, and the women who contributed to the study all reported anxiety, depression, or mistreatment from loved ones. These circumstances still exist due to rural, isolated villages and stigmas surrounding women's biological processes. Women's health often remains misunderstood in various Maya regions, so with additional studies and support, another current goal for researchers involves incorporating more Westernized ideas into their traditional societies.⁷³

Remedies for Psychological Disorders

Ancient Maya culture and medicinal remedies also significantly influence treatments for psychological disorders and conditions. Approximately 25 years

69 Michel, "Medical Ethnobotany of the Q'eqchi' Maya," 138.

70 Michel, 145.

71 Michel, 178.

72 Michel, "Medical Ethnobotany of the Q'eqchi' Maya," 179.

73 Michel, 175–76.



Figure 10: One of the *Piperales* species known as *Piper nigrum*, black pepper. (Sourced from Wikimedia Commons and created by K. Hari Krishnan. This image is licensed under CC BY-SA 3.0.)

ago, the analysis of chemical and pharmacological effects of native flora and fauna on the central nervous system began, and the field continues to flourish today. Limited information exists about treatments for psychological disorders, and the current drugs used to treat them often cause significant side effects; therefore, investigation of herbal and hallucinogenic properties of plants the Maya used provide opportunities for discovery, which could eventually lead to the creation of new antidepressants and herbal drugs to treat psychological distress.⁷⁴

One study from October 2014 at the Metropolitan Autonomous University in Iztapalapa, Mexico studied this issue and concluded that several plants used by the ancient Maya people affected the central nervous system. Gutiérrez, Chilpa, and Jaime determined that 92 plant species present in indigenous documentation treated “*nervios*” disorders, and, among those, 16 qualified for their specific study and underwent experimental evaluation. The scientists explored whether the individual plant extracts possessed the ability to decrease anxiolytic activity or improve anxiety and depression symptoms. They used dried leaf or root materials from the plants for the elevated plus maze (EPM) crude behavioral assays. They tested these extracts on rats and mice. The depression portion of the experiment included a similar procedure with dried plant extracts from trees and their introduction into a live host.⁷⁵

⁷⁴ Gutiérrez, Chilpa, and Jaime, “Medicinal Plants,” 591–608.

⁷⁵ Gutiérrez, Chilpa, and Jaime, “Medicinal Plants,” 591–608.

The study suggested many of the plants seem to affect the central nervous system and diminish the effects of anxiety and depression. One of the plants, *Galphimia glauca* (Figure 11), contained triterpenes galphimines A, B, and C, which are active components that affect anxiolytic activity. Additionally, one of the other plants tested, *Litsea glaucescens* (Figure 11), has active components that demonstrated antidepressant activity, and its compounds are undergoing further experimentation. Monoterpenes, one of the ingredients in modern-day essential oils, also demonstrated effects on the central nervous system, including delayed convulsions and inactivity of pain receptors in the mice. By 2020, estimations from the World Health Organization indicate that depression will become the second most common disability resulting from illness, so this area of research receives worldwide interest.⁷⁶ With further biological and chemical evaluation of the structure and characteristics of influential plants in traditional Maya practices, treatments for psychological disorders will continue to improve.

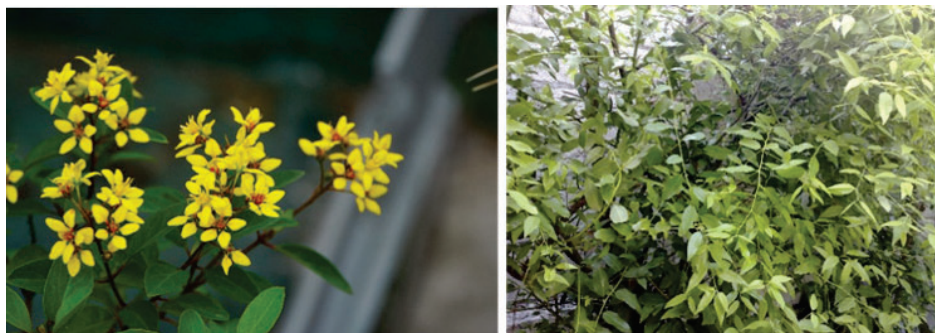


Figure 11: *Galphimia glauca* (left) and *Litsea glaucescens* (right).

(*Galphimia glauca* sourced from Wikimedia Commons and created by Lienyuan Lee. This image is licensed under CC BY 3.0. *Litsea glaucescens* is sourced from Wikimedia Commons and licensed under GNU Free Documentation License.)

CONCLUSION

Ultimately, the indigenous Maya population based their culture on balance and harmony with nature and the gods; even amidst drastic change from European medicinal remedies, they remain connected with this mindset today. With a strong faith foundation and emphasis on life force, the Maya people established a wide range of treatments that combated common ailments, more complex illnesses, and even epidemics affecting their population. Through Franciscan and Spanish accounts, researchers all over the world now under-

76 Gutiérrez, Chilpa, and Jaime, 591–608.

stand more about Maya culture, tropical plants used for healing, and shamanistic rituals for battling disease. Due to the lack of original Maya documentation, scientists possess limited amounts of primary literature to determine the sources of their medicinal treatments; however, archaeologists and researchers continue to search for further evidence and pursue answers in the Yucatán region.

Maya medicine continues to advance modern medicinal methods, and as scientific research continues to explore the health properties of indigenous plants, the fields of medicine, bioprospecting, cancer research, mental health research, women's health research, and herbal medicine promise further progress. By understanding the afflictions the Maya encountered and their methods for overcoming these conditions, scientists continue to discern the role of native medicine on their society. Although the Maya endured difficult periods of disease and colonialism that decimated their population, their native techniques for curing serve as a foundation for current and future treatments impacting and revolutionizing the worldwide medicinal sector.

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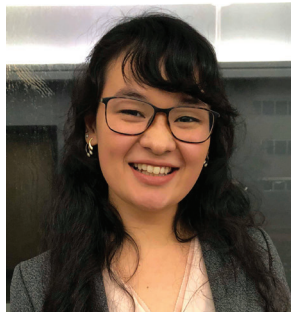
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Beta Lear graduated from Missouri State University in May 2019 with Bachelor of Science degrees in Psychology and Professional Writing. She currently attends Missouri State University as a graduate student, pursuing her Master of Arts in Technical and Professional Writing. Her other interests include writing creative nonfiction and sharpening her public speaking skills.



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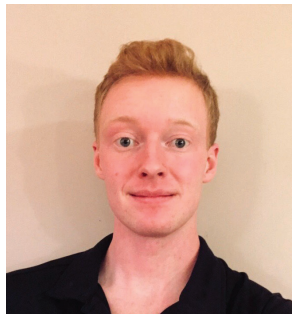
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