

Summer 6-2014

# Dental Anxiety: Personal and Media Influences on the Perception of Dentistry

Jacqueline Glazman

*Honors College, Pace University*

Follow this and additional works at: [http://digitalcommons.pace.edu/honorscollege\\_theses](http://digitalcommons.pace.edu/honorscollege_theses)



Part of the [Health Psychology Commons](#)

---

## Recommended Citation

Glazman, Jacqueline, "Dental Anxiety: Personal and Media Influences on the Perception of Dentistry" (2014). *Honors College Theses*. Paper 134.

[http://digitalcommons.pace.edu/honorscollege\\_theses/134](http://digitalcommons.pace.edu/honorscollege_theses/134)

This Thesis is brought to you for free and open access by the Pforzheimer Honors College at DigitalCommons@Pace. It has been accepted for inclusion in Honors College Theses by an authorized administrator of DigitalCommons@Pace. For more information, please contact [rracelis@pace.edu](mailto:rracelis@pace.edu).

Running Head: DENTAL ANXIETY

**Dental Anxiety: Personal and Media Influences on the Perception of Dentistry**

Jacqueline Glazman  
Psychology  
Graduating May 2014

Dr. Jan Charone-Sossin, advisor  
Psychology Department

## Index:

Abstract	Page 3
Introduction	Page 4
Review of Literature	Page 5
Psychoanalysis and Little Hans	Page 5
The Symbolic Meaning behind Teeth in Dreams	Page 6
The Behaviorist Approach, Little Albert	Page 7
Perception of Dental Fear	Page 8
Techniques and Treatment for Dental Phobia: Pertinent Case Studies	Page 10
Tell-Show-Do	Page 12
Autistic Spectrum Disorder in Children and its Challenges in Dentistry	Page 13
Limitations in Dentistry: Policy Inadequacies Lead to	
Negative Perceptions	Page 14
Dentistry: The Business of Beauty	Page 16
Evolution of Dentistry in Film	Page 19
Present Study/ Hypothesis	Page 21
Methods	Page 22
Results	Page 25
Discussion	Page 27
References	Page 39
Appendices	Page 43

### **Abstract**

Dental anxiety is a condition that plagues millions of individuals worldwide. The cause of anxiety can arise from an array of negative experiences related to dentistry. Additionally, the media's persistent deleterious portrayal of dentistry affects the public's fears and skews the people's general perception of how dentists really are. Nevertheless, people continue to seek dental care for medial and cosmetic purposes, despite major challenges in the healthcare systems. This study aimed to understand whether negative images of dentists would influence how anxious a sample of undergraduate students felt about various dental procedures. The study also asked participants to express their beliefs about dentists and dentistry in general. Finally, it examined the frequency in which this sample visited the dentist and which factors may have influenced their fears, beliefs and activities related to dentistry. The results of the study confirmed the hypothesis that this sample would somewhat regularly visit the dentist despite dental-related anxiety. The hypothesis that people who were shown the negative clip of the dentist would perceive dentists in a more negative light was rejected, as nearly all participants in both groups had an overall positive opinion about dentists. This result showed us how we can screen the images we see in the media and we are desensitized, therefore the surface anxiety these images may provoke are negligible This study confirmed that hypothesis that freshmen would be more reliant on parents to make their dental appointments when compared to upperclassmen was also confirmed in this study. Limitations of this study included a small, similar sample size, a lengthy survey, as well as technical difficulties that may have impacted some of the results of the survey. Future studies on this topic would benefit from a longitudinal study about how dental fears and perceptions change as students become more independent.

## Introduction

Across the world, people suffer from thousands of phobias. To most, this word simply means being scared of something. It is constantly used in our lexicon to describe nervousness about a certain situation or object. In reality, phobias are extreme and uncontrollable fears that can truly hinder someone from living a happy life. Psychologists have faced many battles in their effort to understand what a phobia truly is and how the person came to be so unbelievably terrified.

People can be phobic of just about anything, from centipedes, to clowns, to simply leaving one's room. Recently, psychologists have been preoccupied with finding new treatments and therapeutic techniques to help people overcome their consuming fears. They have also become more vigilant in treating phobias in people who have other disorders such as Autism Spectrum Disorder (ASD), because what works for most cannot possibly be applied for all. (Lai, et al., 2012) (As important as it is to treat phobias, it still extremely important to find the root of the issue before a person undergoes treatment. Time and time again, therapists observe how a phobia seems to be cured, with the emotional baggage simply transferred onto something else.

The media has also taken on an important role in influencing children and adults alike. From films about dentistry to subtle advertisements, we are being bombarded with images of healthcare professionals, both in a positive and negative light. Although often we do not actively acknowledge the affects of seeing doctors and dentists in media images, marketing a specific persona to a target audience is always the main goal of all advertising specialists. Dentists have been portrayed in many different lights in film, television, and various commercial advertising outlets. Like all characters in film, dentists have transitioned to fit stereotypic norms throughout the last century. This paper will trace back the portrayal dentists in film, and how they evolved with changing times. With the growing focus on external appearance, we will see how

advertisements in dentistry have strayed away from portraying dentistry as a medical necessity, and have kept the focus on aesthetic enhancement.

### **Review of Literature**

#### *Psychoanalysis and Little Hans*

Sigmund Freud had shaped the field of Psychology for nearly a century, developing many theories emerging from several case studies. Over the course of his career, Freud's ideas about phobias changed, but the common thread of all his work was the psycho-sexual nature of all psychological disorders. Initially, Freud believed that phobias are a result of traumatic experience. In 1894, he postulated three different types of phobias: "(1) typical phobia...which cannot be traced back to any psycho-sexual mechanism...(2) purely hysterical phobia...resulting from traumatic experiences not abreacted; and then (3) the greatest majority of phobia's...the transposition of effect." This last type of phobia is characterized by the ideation of the conflict being displaced onto another ideational content or object. (Compton, 1992, p. 210) For the acquisition of this last phobia, his prime example was a five-year-old child commonly known as Little Hans. Freud believed that the libido was set free by the anxiety Little Hans experienced with his phobia of horses. Little Hans was not always afraid of horses; in fact Little Hans enjoyed playing with them at one point. On a particular occasion he witnessed a horse-bus fall down and the horse started kicking its feet. From that moment on, Little Hans became so fearful of horses that he refused to leave his home in fear of encountering one. Freud expressed, "there were tendencies in Hans which had already been suppressed and which...had never been able to find uninhibited expression: hostile and jealous feelings toward his father and sadistic impulses (premonitions, as it were, of copulation) toward his mother." By being fearful of horses he had a

good reason to stay at home alone with his mother while his father was out at work (Compton, 1992, p. 217). Freud theorized that Little Hans had displaced his feeling toward his father onto the horse in the form of anxiety. “Libido, accumulated as a result of mental conflict, was, in this condition, set free in the shape of anxiety” (Compton, 1992, p. 225). With his analysis of Little Hans, Freud displayed how all phobias are simply psycho-sexual.

### *The Symbolic Meaning behind Teeth in Dreams*

Teeth have been shown to have a disproportional prevalence in dreams when compared to other parts of the body. One of the most common dreams experienced universally is that of one’s teeth falling out. Many psychoanalysts have sought to understand the symbolic meaning behind these dreams. In the 1940’s one analyst, Coriat, theorized that this fear is “of a sexual excitation which is damned up, unsatisfied and utilized” He also stated that teeth are associated with the genitals, and that dreams of losing teeth are phallic symbols which are related to the fear of castration (1946, p.365).

Others have suggested that these dreams represent unconscious desires to regress to a time of toothlessness, a time when we are nursed by our mothers, and when we have no need for independent decision-making (Capps & Carlin, 2011, p.782-783). Through analysis, symbolism in teeth has been linked to just about every aspect of a person’s life.

A gap between teeth may symbolize the absence of love in interpersonal relationships. They may also symbolize strength, sexual attractiveness or unattractiveness, sexual potency or impotency, health or decay, youth or age. Teeth may symbolize loss...Teeth may symbolize genitals, either male or female, sexual intercourse, masturbation, giving birth, castration, a wish for a penis, abortion, the womb, and death. False teeth can mean lying or deception and therefore imply sin. (Capps & Carlin, 2011, p.783)

Along with theories about helplessness and being at the breast of the mother, there are also evolutionary perspectives about baring ones teeth. Teeth, like other bones, symbolize strength and power. By exposing ones teeth and allowing someone to manipulate our very core skeleton, we are leaving ourselves vulnerable and powerless. The display of ones teeth has also been linked to showing sighs of submission and defeat in the animal kingdom, which can be very symbolic for people who finally chose to see a dentist (Maestriperi, 1999, p. 66). Many therapists believe that the anxiety people experience about going to the dentist is rooted in these symbolic dreams. It is possible that if these unconscious issues are addressed, phobias of the dentist will be minimized.

#### *The Behaviorist Approach, Little Albert*

Little Albert is to Behaviorism what Little Hans is to Psychoanalysis. As conditioning and behaviorism began to replace theories of the unconscious, new theories had to be experimentally determined to explain phobias that children acquire. And who better to come up with an experiment than the father of Behaviorism himself; John B. Watson? With his colleague, Rosalie Rayner, Watson argued that phobias are learned, conditioned responses. To do this, he exposed a very placid baby to objects that the baby was not previously fearful of, and paired this exposure to a loud, frightening sound. At just eleven months old, Little Albert was conditioned to fear a white mouse. “The instant the rat was shown the baby began to cry. Almost instantly he turned sharply to the left, fell over on the left side, raised himself on all fours and began to crawl away so rapidly that he was caught with difficulty before reaching the edge of the table” (Watson & Rayner, 1920). Using the same technique, Watson was able to elicit nearly the same reaction toward a fur coat, Santa Clause Mask, and dog. The learned phobia caused Little

Albert to resort to thumb sucking at the presence of these stimuli, something he did not do outside of the experimental conditions. Additionally, Watson & Rayner proved that even though a substantial amount of time had passed between experiential sessions, Little Albert was quick to recognize those things that he feared. Finally, the experimenters poked fun at the analytic perspective of phobias and their acquisition once they determined that it was indeed the loud noise that was associated with the fear of the furry objects. He stated,

The Freudians twenty years from now, unless their hypotheses change, when they come to analyze Albert's fear of a seal skin coat – assuming that he comes to analysis at this age – will probably tease from him the recital of a dream which upon analysis will show that Albert at three years of age attempted to play with the pubic hair of the mother and was scolded violently for it. (Watson, Rayner 1920)

This statement, although somewhat raw, placed behaviorism in the forefront. Perhaps irrational phobias were conditioned responses to actual fearful stimuli: They were not as irrational as Freud had postulated. They had a valid purpose in protecting the safety of the phobia-haver. Phobias, although irrational are protective in nature. They shield the fearful individual from what they perceive to be imminent danger by employing avoidance techniques. With this knowledge, psychologists began to use counterconditioning in order to get rid of the phobias. Although this initial study was widely unethical, counterconditioning led to many of the widely used behavioral techniques for helping children and adults eliminate phobias. This focus on the behavior began the process of ignoring the cause of the phobia, with a corresponding shift to a focus on stopping the phobic behavior.

### *Perception of Dental Fear*

A study conducted by Liddell, Rabinowitz & Peterson (1997) examined how children become more fearful about going to the dentist as they mature. They asked a sample of 277

children how they felt about four stages of going to the dentist: finding out they have an appointment, sitting in the waiting room, getting a cleaning, and getting a filling (p. 623). The children were asked these same questions at age nine and twelve. The results found, “the inclination of children to perceive dental stimuli and their own responses as being more often negative than positive was accelerated with age” (p. 628). The researchers believed that when the children were younger they were better instructed about the positive aspects of dentistry, but as children grow older, they are no longer comforted by the positive aspects of dentistry and grow more anxious about dental experiences as they hear of more negative experience associated with the dentist. The authors concluded, “Providing children with positive dental experiences appears to pay dividends while the converse may bring life-long for all concerned” (p. 630). Children fear what they are unfamiliar with, and even a child who has not been traumatized by some unconscious event or a bad dental experience may grow fearful unless dentistry is presented in a positive light at all ages. With positive early education about dentistry, we hope to curb the irrational, unconscious associations children might have about dentists.

Another issue that arises is the self-fulfilling prophecy of the dentists. Many dentists are faced with dealing with the same phobic and anxious children for many years. “When a child looks at the dentist and the dentist is reminded of the last “stressful” treatment, the dentist doesn’t greet the patient and the patient and the first communication takes place in a non-neutral treating room” (Welly, Lang, Welly, Kropt, 2012, p.201). Welly et al. explain that adults eventually develop their own coping strategies for dealing with dental anxiety, but dentist needs to take on the role of soothing the anxiety for children (2012, p. 195). If children continue seeing the same dentists, it is likely that both the practitioner and the patient will have preconceived

notions about how the other will act, making the process of developing strategies less effective and more lengthy.

There have been several methods employed to assess dental phobias in children who are not able to convey their feeling on paper. One such method is called the Revised Smiley Face Program: Children are asked several specific questions related to dental procedures. They are then asked to choose from seven smiley faces ranging from happy to sad, four of which are considered neutral. This allows for children as young as six to convey exactly how much they fear certain dental procedure (Buchanan, 2009).

#### *Techniques and Treatment for Dental Phobia: Pertinent Case Studies*

One important study by De Jongh, van den Oord & ten Broeke (2002) aimed to understand the efficacy of Eye Movement Desensitization and Reprocessing (EMDR) for patients with dental phobias. Contrary to systematic desensitization techniques, this method combines a short exposure period of the fear that is paired with a distracting stimulus (p. 1490). Of the four patients examined in this study, two were young adults whose phobias arose from trauma. Mark's phobia began at the early age of five when a local analgesic did not work while he was getting two teeth pulled. This experience led to a phobia of getting any dental treatment done because of a traumatic experience directly linked to dentistry. However, like many young adults, Mark would eventually need to go through a dental surgery to get all four of his wisdom teeth pulled (p. 1491). Joany's dental phobia was acquired much later in her life. She was molested, her aggressor broke her jaw and she needed to have it fixed at the hospital. After this experience just the sound of a drill brought upon severe panic attacks and she even experienced extreme sensations of pain where the aggressor broke her jaw. Joany not only experienced the

trauma of a painful dental experience, but her pain was also linked to severe emotional trauma. The two patients were instructed to apply various relaxation techniques at the thought of the dental procedures as well as apply positive cognition such as “I am confident”. The patients were asked to focus on something else other than their fear, for example the hand of the therapist, which would eventually lead to the hand of the dentist. Additionally, the patients were asked to run a mental video of which they had successfully undergone a dental treatment and were prepared to take on another one in a positive light (1995).

This distraction and sensory eye movement technique proved to be very effective. Mark was successfully able to get three teeth removed by a dentist, and one by a dental surgeon, totaling in three separate dental appointments. He experienced low levels of fear during all three sessions.

For Joany, this treatment did not initially work. The sound of the drill still elicited such a deep fear that the therapist needed to take preliminary steps. Joany underwent therapy sessions where she expressed her anger toward her aggressor until she no longer felt the desire to express anger. At this point a dentist was immediately introduced and the dental work began. Joany was able to get through the necessary drilling and her levels of anxiety fell dramatically from the baseline (p. 1498-1499). This combination of cognitive behaviorally therapy and distraction aided these young patients in helping them overcome their fear enough to seek the dental treatment they needed.

In a different case study, by Bird (1997) a nine-year-old child nicknamed Miss C expressed severe anxiety about the dentist and the thought of undergoing a dental procedure. She was unable to finish an appointment, and it was concluded that general anesthesia would be the next step in dental treatment for this child. Fortunately, a therapist employed a different

technique: hypnosis. The child was asked to visualize, in detail, her favorite movies.

Additionally, breathing and relaxation techniques were also taught to Miss C. During the therapy sessions, Miss C was asked to watch these movies inside her head while the therapist gradually proceeded to get into the child mouth, eventually able to tap each of her teeth without an anxious response (p. 81). This was seen as a type of hypnosis in which Miss C is aware of the situation but is completely concentrating on only the movie. Her mother is the one in control, with a virtual remote, which she uses to turn the virtual movie off and on. The therapist had to specify that this would only work in the presence of the dentist and Miss C's mother so that the technique would be situation specific (p. 82). To the therapist's surprise, the child had enjoyed the movie experience enough to become desensitized by the sessions in the therapist office and did not need to apply them during the actually dental sessions (p. 83). This study showed that just the ability to imagine something in a fake dental situation can aid in successfully remain calm under real dental circumstances. But it leads one to question why a child nine years of age would need to have her mother, or any other person in control? Wouldn't allowing Miss C to have complete control of the situation allow this technique to be transferable to other anxiety provoking situations?

### *Tell-Show-Do*

One of the most commonly used techniques in Pediatric Dentistry is Tell-Show-Do. Significant numbers of children, especially ones with Dental Phobia, are afraid of the unknown. Harold Addleston, a Harvard Dentist coined the phrase and revolutionized the procedure in the 1970s. Children are very keen at knowing when they are being deceived and lied to by adults; therefore honesty is best policy when performing dental procedures on children with dental

phobia and anxiety. In this process, trust is built between the young patient and the dentist, allowing for the patient to feel in control of the procedure. The child is first shown all of the instruments, usually allowed to touch them so that the strange sensations they will feel are not so foreign. Then, with every new step, the dentist clearly delineates exactly what he/she is about to do in a non-threatening manner. The dentist keeps his hands in plain view and frequently allows the child to hold a mirror so that they can observe everything being performed. This is a form of desensitization, which is beneficial because the dentist can do it during the intended procedure, instead of the child seeking preliminary therapy. Unlike adults, who usually would prefer to be distracted, children are intrigued by many of the procedures, and, by simply allowing them to watch, a lot of the unknown fear is diminished (Hendrie, 2003).

#### *Autistic Spectrum Disorder in Children and its Challenges in Dentistry*

Throughout the United States and other countries, dental needs are the most prevalent of unmet health needs in children. “An estimated 50% of adolescents in the general population were reported to lack the recommended number of dental visits (Lai, et al., 2012). Even more prevalent, however, is the unmet needs of children with disabilities, particularly children with Autism Spectrum Disorder (ASD). This lack of healthcare may be due to the very nature of the disorder itself. Clinical experiences have characterized ASC as a set of signs and symptoms that fall under three main categories: 1. Impairments in reciprocal social interactions, 2. impairments in verbal and nonverbal communication, 3. patterns of repetitive, stereotyped behaviors, interests and activities (Bölte & Hallmayer, 2011). With so many children on the spectrum unable to communicate back to the doctor, their sensory overload due to the actual procedure cannot be accurately determined. This child is already overstimulated, leaving him/her to feel extreme

anxiety and have no proper way of releasing it. “Due to the variety of disturbances and disabilities of the children who participated in this study, it is expected that it would be difficult to manage them in a dental chair and that one-third of the children would have been treated under general anesthesia (Murshid, 2011, p. 1633). But the cost of anesthesia is usually not covered by insurance companies for regular dental procedures like a checkup and cleanings, hence parents are at a position where they simply cannot afford to have the dental needs of their children met. Parents put dental health on the backburner in respect to other aspects of the ASD child health, but serious issues can arise when their teeth are ignored.

Although the nature of the disorder prevents many ASD children from successfully sitting through a dental appointment, it is partially the fault of dental education process. Dental students lack instruction about how to deal with these kids.

A survey of dental school programs revealed that only 64% offered a separate course about special needs patients...50.8% of dental students have no clinical experience in caring for patients with ASD or related intellectual/developmental disabilities, and 60% reported having little or no confidence in providing care to this population. (Lai, et al., 2012, p. 1301)

Naturally, it would be convenient for the dentist to treat this type of child while he or she was asleep, but in reality this is not cost effective and most basic dental procedures work best when the patient is responsive to the doctor when facial adjustments need to be made.

#### *Limitations in Dentistry: Policy Inadequacies Lead to Negative Perceptions*

There are many factors other than fear that lead to dental avoidance and neglect. The rising cost of dental equipment and dental procedures force dentists to raise prices, making dentistry unaffordable for many people. Although some patients are vividly aware that dental needs are important, they simply are unable to afford proper care. While most people have some

variety of personal or government assistance for seeing doctors or going to the hospital, dental care is often not included in company and government policies. “Dentists we interviewed believe that change is required by government and not by the dental professional, because they claim that basic dental care is “basic healthcare, much like going to the physician...for some disadvantaged people, at least the basic needs need to be covered” (Wallace & MacEntee, 2012, p.36). Dentists are placed in a lose-lose situation when they treat patients who cannot afford their services. Internationally, dentists have faced difficult decisions from government policies and insurance companies assigning fee schedules that were unreasonable for the amount of work and the expensive materials required, so most dentist chose to privatize their practices and expect patients to pay out of pocket. “Particular concern focused on discrepancies between the fees paid by public dental benefit plans and the fee guide used by the local dental association.... “the local grocery stores doesn’t charge [low income customers] less for their milk or the corner store [charge less] for their cigarettes (Wallace & MacEntee, 2012, p.35). Running their business and making a living requires dentist to make cautious decisions of where they will cut fees for patients and which patients they simply need to turn down. The public places blame on the dental professionals for these inadequacies in the dental care system. “The contrasting view from low-income people is that dentists are greedy and should show more compassion...Others were even more critical, of dentists who they believe are not interested in public health service but “go into dentistry because it is profitable” (Wallace & MacEntee, 2012, p.36-37). Dentists feel immense pressure to see their patients who already have such negative opinions about them. Patients are well aware that many of their dental needs are not being addressed and they are fighting for dentistry to be less privatized. “In many respects the autonomy of clinical professionals has been eroded over the past decade, in part by a better informed, less trusting public demanding greater

accountability and openness” (Dancer & Taylor, 2007, p.16). It is this endless vicious cycle in which neither the patients nor the practitioner can benefit from dentistry because of inadequate fee schedules and public policies that needs to be stopped. Patients are therefore forced to wait until their dental problems become so unbearable that they need to go to a medical facility, such as a hospital for painkillers, instead of treating the source of the problem and implementing preventative measures. The foundational problem needs to be addressed on a national and international scale. The general consensus of many dentists is that “policy-makers are too far removed from the clinical situation to understand” the needs of both dentist and patient (Dancer & Taylor, 2007, p.16). If our nation is leaning toward universal healthcare, dental care needs to be included so that they are adequately met for all, and that dentists can afford to treat everyone.

*Dentistry: The Business of Beauty*

Like many other medical professions, dentistry allows for practitioners to also be businessmen. Although there are dentists in large medical facilities such as hospitals, the vast majority of dentists run private and group practices in which their salaries depend on how much they work and what rates they charge. As write Dancer & Taylor, “Calnan *et al* (2002) showed that dentists enter the profession because it was practically oriented and that they could ‘help people’, but few felt equipped for the business aspect of the job. However, 88% felt that business orientation was essential to the job, and 68% felt that it was appropriate to run a dental practice in the same way as a small business” (Dancer & Taylor, 2007, p.12). Although there is a public need for dentists to accept assignment and fee schedules implemented by various public policies, dentists are reluctant to relinquish their autonomy.

It is clearly demonstrated the practitioners’ belief that they have built up their practices as their own business, and while many of them admitted to find the business side of the

practice difficult and not necessarily to their liking, they were not prepared to let a third party 'mess it up' after the effort they had invested into it. (Dancer & Taylor, 2007, p.22)

Dancer and Taylor believe that the business aspect of dentistry is putting immense pressure on many of the practitioners to undergo a treadmill effect in which they work under stress to complete as many treatments as they can, so that they can generate an adequate income. This leads to dentists having to work harder, longer hours, and raise their rates to meet patient demands.

While some aspects of dentistry are unchanged, patient requests are becoming more difficult for dentists to handle, because the scope of the treatments they seek are often outside the realm of dental medicine and inside the world of cosmetic beauty. "The market for cosmetic dentistry is growing and lifestyle media programs have stimulated a greater interest in this area, with practitioners now able to offer a wider range of services privately to meet the demands in areas such as cosmetic dentistry, bleaching, Botox, cosmetic fillers and anti-snoring devices" (Dancer & Taylor, 2007, p.14). This leads to the de-medicalization of dentistry, making it more of a commodity. By providing services that have little to do with teeth, such as Botox, dentists can expand their business to meet the needs of their clientele. Many dentists need to undergo new expensive programs to learn how to administer these non-dental procedures. This also means higher costs in advertising and shifting the image of their practice.

If we take into consideration a typical website for a dental office, there is nearly always some form of advertising of an aesthetic procedure whose purpose is solely to make people look better. Catch phrases such as "Brighter Smile" are often used by dentists in various forms of advertising. This prescribes vivid imagery, and the promise of perfect teeth is what attracts clients (TNT Dental, 2014). But dentists are then expected to provide services that fit the photo-

shopped images in the ads. This leads to patient's dissatisfaction and unrealistic expectations.

For many patients, a perfect smile is not just a commodity but also a necessity. "It's kind of hard to get into a service job...I'll go for an interview and try not to smile but who's going to hire a guy who doesn't want to smile?" (Wallace & MacEntee, 2012, p.35) By attaining a healthy, nice smile via dental cosmetics, people can boost their confidence levels and become eligible for opportunities they once feared.

Standards of beauty continue to change, and dental professionals are constantly trying to adjust to public demands. "What makes a person desirable and attractive?...It's not the symmetry; it's perfect imperfections" (Saint Louis, 2010). This is referring to a new trend of patients wanting new, more realistic and natural restoration that is being seen in dentistry. There are known as couture veneers.

Couture veneers are partly a response to the mass-marketing of perfect teeth, which includes widely available over-the-counter bleaching strips. Nearly 600,000 people had veneers in 2006, an increase of 15 percent over 2004, according to the latest statistics available from the American Academy of Cosmetic Dentistry. Many of these, in their generic perfection, were obviously fake. (Saint Louis, 2010)

This can lead to even more difficulty in the communication between the patient and professional.

Whereas some people still want the movie star smile, others are paying top dollar for a natural look. Dental professionals need to make the cautious decision about how they will advertise their practice.

All the while people still think negatively of dentists. "While the general perception is of a profession delivering a poor service and driven by money, individual experiences at a more professional level are more positive. The negative perceptions of the profession are fuelled in part by erroneous media reports of high practitioner incomes, resulting from basic misinterpretation of gross and net income levels (Dancer & Taylor, 2007, p.14). Dentists fight to

advertise and perform procedures that were never expected of dentists before, calling for a wider range of patient, expenses, and issues that can arise in their respective practices.

### *Evolution of Dentistry in Film*

People form ideas about the world using stereotypes. The images we see in media outlets such as movies and television programs help us categorize our ideas about people and situations. The professional field of dentistry has fallen victim to acquiring an inaccurate stereotype in film. In an important study about dentists' depiction in film, "Who Stole Nemo" reviews 100 films about dentist over the past century. "From the earliest forms of media, including paintings and written word, a visit to the dentist commonly has been portrayed as a negative experience, often complete with screaming patients and gross incompetence on the part of the dental professional" (Thibodeau & Mentasti, 2007, p.657). The study evaluated the genre of the films and what type of role the dentist character played. In more than one hundred years, it was calculated that over sixty percent of the movies that featured dentists were considered comedies. But the role of the dentists was not often a funny role, but a frightening one. "Many of the films we encountered in our research depict the dentist as incompetent, menacing, sadistic, immoral, unethical, or corrupt, and one might assume that all dentists behave in this manner" (p. 657). The study addresses how profound of an affect the media may have on certain viewers. The frightening depictions in these films may perpetuate dental anxiety, avoidance behavior and unnecessary suffering for people who may not have been fearful of the dentists prior to viewing the films.

According to Thibodeau & Mentasti, the public image of dentists has become more respectful due to advancements in technology allowing for less painful procedures. But the movie industry has not taken a similar, positive turn. They too have used advancements in

technology to make dentists look even more terrifying and evil in a more realistic way. (p. 659)

If we look at the simple example of the incredibly successful children's film (2003) *Finding Nemo*, the person who abducted Nemo was a scary dentist who always had patients screaming in his chair. All the fish characters ever talked about was escaping from him, which can be perceived as patients metaphorically wanting to escape from the dentist. If this is the image that we are showing to very young children, these stereotypes can be carried into adulthood and phobic avoidance of dentists can occur.

Thibodeau & Mentastido point out that dentists in film are starting to reflect the growing number of minorities and females in the actual field of dentistry as evident by the film (2002) *Snow Dogs*, in which a very wealthy African-American dentist is the main character (p. 659). Although women are being represented in films about dentists in higher numbers, they have not yet transitioned into the best possible light. As evident in the film (2011) *Horrible Bosses*, the dentist in the film is a conniving, sadistic, obsessive nymphomaniac who should be feared by both patients and employees. Although the common theme of the scary dentist is upheld in this movie, the disturbing objectification of women outshines any fearful or professional actions made by this dentist. As women continue to be objectified in all avenues of media, it seems that no matter what role they play in film, sex sells.

Dentistry is a unique field that is always fighting to balance business and healthcare. For many, dentistry is unavailable on even a basic level, while for others is it a beauty commodity. As a society, we are influenced by the images of perfect smiles and pearly whites. Those who can afford this luxury will undergo financial and physical burdens to achieve the perfect look. Dentists have capitalized on the business of beauty and continue to innovate in both the preventative and restorative field to help patients achieve the perfect look. The public's focus on

beauty has backfired in many situations, portraying dentist in a negative, greedy and sometimes even evil light. It seems that dentistry is the perfect example of beauty is pain. The idea of pain, whether real or imagined is too much for many anxious patients who implement avoidance behaviors, while for others it could be a reason to overcome their fears.

### **Present Study/ Hypothesis**

The goal of the present study was to determine how anxious a population of college students is about dental procedures. The effects of media portrayals were also an important theme in the study. It was hypothesized that the unflattering media portrayals of dentist would influence how people perceive real dentists and dentistry in general. In this experiment, one group was shown a frightening yet satirical video of a dentist. It was therefore hypothesized that this group would display more fear and negativity toward dentistry in their survey responses. Additionally, a vast amount of dental advertisements feed into our culture's growing obsession with aesthetic perfection. Therefore, it was also hypothesized that people might be going to the dentist somewhat regularly despite being anxious about the procedures, to fit societal norms. Also, it was believed that freshmen would be visiting the dentist more often because they are newly integrating into the college scene and it is likely that their parents still take on the responsibility of making dental appointments for them, whereas upperclassmen are already assimilated into a more independent college life.

## Methods

### Participants

Eighty-two Pace University students at the New York City campus were asked to participate in this study. Of those 82, one participant's data was not included in the analysis due to their failure to follow the directions provided. Of the participants in this sample, 59 identified as female, 19 identified as male, and 3 chose not to disclose their gender. The ages of participants ranged from 18 to over 30, such that 92.7% of participants were in the 18 to 23-age category. Furthermore, 6 of the participants identified as freshmen, 20 identified as sophomore, 24 identified as junior, 27 identified as senior, 2 identified as other and 2 chose not to disclose status at Pace University. When asked about current place of residency, 22 participants stated that they lived in a dorm, 38 stated that they lived with a parent, 20 selected other, and one participant chose not to disclose their residency. The participants mainly consisted of students from two classrooms; one from a Psychology class on Death, Dying and Bereavement, and another from an Organic Chemistry II class. The remaining participants were randomly selected in various areas of the university.

### Materials

After providing informed consent, participants filled out a series of Likert-Type items and several Yes/No questions that assessed their levels of dental anxiety. The Likert-Type items had a 5-point response format. The participants were then asked several questions about frequency of dental visits. Finally, the participants were asked to fill out a short demographic section in order to properly identify the sample.

*Measurement of Dental Anxiety.*

To determine levels of anxiety related to dentistry, several measures were combined to generate a survey to specifically meet the needs of this study. Several components from Dental Phobias and Pain Sensitivity Inventory (DPPSI; Gross, 1992) were converted from a 7-point Likert scale to a 5-point Likert scale to be used in this portion of the survey. In addition, elements from the Dental Cognitions Questionnaire (DCQ; de Jongh, Schoenmakers, Ter Horst, 1995) were used in the original Yes/No format. Additionally, elements from the Dental Fear Interview (Vrana, McNeil, McGlynn, 1986) were reformatted to meet the needs of this study and were asked of participants in the survey.

*Measurement of Perception of Dentist/Dentistry.*

Participants were asked to answer a series of Yes/No questions regarding their beliefs about dentists and dentistry in general. This was used to determine if they have an overall negative or positive outlook on dentistry. These questions were adapted from the Dental Fear Interview.

*Demographic Section.*

Participants completed a short demographic section at the end of the survey, which specifically asked about their age, gender, status at Pace University, and place of residency. This was used to properly identify the sample and to be used for possible correlational purposes.

## **Design and Procedure**

*Group 1-Media.* After reading the informed consent form, participants viewed a 3 minute long clip taken from the film (1986) *Little Shop of Horrors*, portraying a satire of a sadistic dentist. (Appendix I) The video was shown on a projector screen at the front of the room. Immediately following the video, the participants were asked to fill out 3 questions specifically regarding the video. (Appendix II) Participants were then instructed to fill out the various Likert

scales in randomized order to account for carryover effects. Next, participants filled out a Yes/No section about their beliefs about dentists and dentistry in general, followed by some Yes/No questions about feelings during dental treatment. This was followed by another Likert-Type section about feelings toward several different dental situations. In the next series of questions, the participants were then asked to report about how frequently they have visited the dentist in the past several years. Additionally, participants were asked to fill out a brief demographic section at the end of the survey. (Appendix III) The participants were provided with contact information in the event that they wished to inquire about the results of the study, or if they have any concerns regarding the subject matter of the survey. Participants were compensated for their participation with several pieces of candy.

*Group 2-Control.* After reading the informed consent form, participants were then asked to fill out the various Likert scales in randomized order to account for carryover effects. Next, participants filled out a Yes/No section about their beliefs about dentists and dentistry in general, followed by some Yes/No questions about feelings during dental treatment. This was followed by another Likert-Type section about feelings toward several different dental situations. In the next series of questions, the participants were then asked to report about how frequently they have visited the dentist in the past several years. Additionally, participants were asked to fill out a brief demographic section at the end of the survey. The participants were provided with contact information in the event that they wished to inquire about the results of the study, or if they have any concerns regarding the subject matter of the survey. Participants were compensated for their participation with several pieces of candy.

## Results

It was hypothesized that exposure to media would result in higher levels of anxiety and negative perceptions of dentistry, compared to a control group. In order to analyze anxiety levels, an average of all participant scores was taken for the control group and for the video group resulting in two mean scores of anxiety levels. An independent samples t-test was used to compare the mean anxiety level of the control group to that of the video group, to test this hypothesis. The assumption of homogeneity was met, Levene's  $F=0.026$ ,  $p>0.05$ . The results of the analysis showed that on average, the video group had higher levels of anxiety than the control group,  $t(78)=3.290$ ,  $p<0.05$ . More specifically, the video group ( $n=38$ ) had an average anxiety level of 3.10 ( $SD=0.85$ ) on a scale of 1-5, whereas the control group ( $n=42$ ) had an average anxiety level of 2.49 ( $SD=0.82$ ).

In order to more thoroughly examine dental anxiety, the three questions asked of the video group were analyzed. 89.5% (34 out of 38 participants) did not believe that the clip accurately depicted dentistry. 94.7% (36 out of 38 participants) did not believe that the video depicted a typical mindset of dentists. 50% (19 out of 38 participants) stated that this video depicted how they felt when anticipating a dental procedure.

In order to further interpret the results of the questionnaires, a mean anxiety score of 4 or above would be considered highly anxious. Of the present sample, 8.64%, or 7 participants (4 from the video group and 3 from the control group) fit this criterion of being highly anxious. Upon examining the responses to the Measurement of Perception of Dentists Questionnaire, it was found that 87.7% (71 out of 80 participants) believed that dentists tend to be capable; 69.1% (56 out of 80 participants) believed that dentists are patient; and 75.3% (61 out of 80 participants) believed that dentists do care about the patient's experience of pain during

treatment. It was also found that those participants who had high levels of dental anxiety (rated 4 or more on average anxiety) tended to rate their dental fear as more intense than other fears,  $r(78)=0.742, p<.001$ . 16.7% (13 out of 78 participants) indicated that they were interested in seeking dental anxiety treatment.

Avoidance behaviors in relation to dentistry or dental-related media were examined. 92.5% (74 out of 80 participants) indicated that they did not avoid media related to dentistry. Additionally, 71.3% (57 out of 80 participants) said that they have not avoided the dentist because of fear/anxiety. 80% (64 out of 80 participants) indicated that stories others have told them did not prevent them from seeking dental care.

A within subjects One-Way ANOVA was performed to determine if a difference in anxiety levels exists based on the amount of time elapsed since the participant last saw the dentist. It was found that no significant relationship existed between the time elapsed and anxiety levels,  $F(4,75)=0.870, p>0.05$ . An independent samples t-test was performed to determine if a relationship between average anxiety and the belief that the participant presently needs to see a dentist exists. It was found that no such significant relationship exists,  $t(76)=1.964, p>0.05$ , however, it should be noted that this relationship is approaching significance with a  $p$  value of 0.053. A Chi-Square analysis was performed to determine whether a relationship exists between time elapsed since the participant's last dental visit and their status at Pace University. It was found that no such relationship exists,  $\chi^2(16)=12.146, p>0.05$ . Similarly, no relationship was found to exist between amount of dentist visits in the past 2-3 years and the participants status at Pace University,  $\chi^2(12)=10.737, p>0.05$ .

In order to assess the beliefs that participants hold about dentist greed, the results of three questions were examined. 91.5% (75 out of 81 participants) indicated that they did not believe

that dentists are selfish. Furthermore, 73.2% (60 out of 81 participants) indicated that they do not believe that dentists only wanted their money. Similarly, 62.2% (51 out of 81 participants) did not believe that they would be sucked into an expensive dental procedure.

When asked about the individual responsible for scheduling dental appointments, 39% (32 out of 81 participants) reported that they schedule their own dental appointments, whereas 54.9% (45 out of 81 participants) indicated that their parents were still responsible for scheduling dental appointments. Of the 6 freshmen, 5 identified that their parents still schedule their dental appointments. 13 out of 20 sophomores, 14 out of 24 juniors, and 13 out of 27 seniors also stated that their parents made their dental appointments. Upon performing a Two-Way Chi-Square analysis, it was found that the frequency of going to the dentist over the past 2-3 years was not related to who was responsible for scheduling the participants appointments,  $\chi^2(6)=3.431$ ,  $p>0.05$ .

### **Discussion**

The results of this study provide interesting insight into how young college student value dentistry and how anxious they are about dental procedures. According to the data, only 8.64 % of the participants reported having symptoms of extreme dental anxiety. This finding is congruent with past research on dental anxiety with undergraduate students. “The prevalence of Severe Dental Anxiety (SDA) is relatively high: in a study on urban population of Goteborg, Sweden, SDA was encountered in 6.7% when scale of dental anxiety with 10 questions was used” (Jankovic, 2014, p.16). In another large study of 620 undergraduate students in Montenegro, it was found that roughly 7.41% of the students were found to have severe dental anxiety (Jankovic, 2014, p.18). Although little research has been published about undergraduate

students in the United States, the percentages from this study are close to those found across the globe. Interestingly, although only 8.64% of the participants of this study showed symptoms of severe dental anxiety, twice that amount, 17%, said that they would be very interested in seeking help for the treatment of anxiety. This leads one to believe that participants may be more anxious than determined by this study because they actively acknowledge the need to seek professional help in coping with anxiety.

This study confirmed that the group that saw the video, on average, had higher rates of anxiety when compared to the group who did not see the video. The average anxiety reported by one of the control group was 2.49 out of 5.0 on a Likert Scale, whereas the video group had average anxiety level of 3.10. Only one more participant (4 versus 3) in the video group expressed extreme dental anxiety when compared to the control group. Several theories can be applied to explaining this. All the members of the video group came from a course in Death, Dying and Bereavement. This emotionally difficult course teaches students to balance their depressing and stressful thoughts and bring themselves back into a positive reality. One way this is accomplished is defense mechanisms.

We use defense mechanisms to protect ourselves from feelings of anxiety or guilt, which arise because we feel threatened, or because our id or superego becomes too demanding. They are not under our conscious control, and are non-voluntaristic. With the ego, our unconscious will use one or more to protect us when we come up against a stressful situation in life. (McLeod, 2008)

Various defenses mechanisms are implemented in this course including repression of thoughts and denying that certain stimuli are present. Since the students in this course readily use defense mechanisms to cope with the stress of learning about death, it is likely that in the same setting, these students will employ similar defense mechanisms about dental anxiety.

Half of the students in this group stated that the terrifying events that occur in the video are congruent with thoughts they have while anticipating a dental visit. These students acknowledge that they experience very severe anxiety in reference to dental procedures. The video seemed to strike some chord with the students in this group. The video portrayed very fearful dental situations in a very exaggerated fashion. It brought out all the archetypes of the dentists, possibly being the ultimate villain. An overwhelming 94.7% of the participants in this group did not believe that this archetype of the evil dentist accurately depicted an actual dentist. So it leads to the question: Why 50% of participants still express feeling overwhelming exaggerated fear in a real dental situation? It is possible that the video briefly brought their true rational fears of dentistry to the preconscious level even for only a brief moment. These same students did not express similar feelings of anxiety in the remainder of the survey, as would be expected from this sample. It is possible that they began to employ defense mechanisms against this very sensitive topic as they filled out the remainder for the questionnaire, in a way similar to how they discuss their fun weekend immediately after a long lecture on suicide.

Additionally, it is possible that the absence of visual stimuli in the second part of the survey hindered the participants' ability to visualize the anxiety provoking situations they were asked about. In the video, the pain was raw and terrifying, whereas the words on paper are innocuous. It is very plausible that many of the participants in the study were not processing the statements in the survey effectively. "Good readers create a wide range of visual, auditory, and other sensory images as they read, and they become emotionally involved in what they read"(Zimmermann & Hutchins, 2003, p.5). Although the dental situations presented to the participants may not have been as riveting as a great novel, the images they should have evoked were vivid and visceral. It was evident that at various parts of the survey most participants

simply were not interested in every statement in the study. Zimmermann and Hutchins (2003) identify that this is a sign of wandering, which implies that the person does not comprehend the statements. “My mind starts to wander and I am thinking of all sorts of different things, but not about what I am reading” (p. 152). If the participants failed to reconnect at the time their thoughts began to wander it is likely that the meaning behind the questions was lost and answers became less thoughtful.

When considering the even lower levels of extreme dental anxiety in the control group, other factors may be important to consider. Since innovations in technology leave images of nearly anything imaginable right at our fingertips, it is possible that many of the participants have become less accustomed to imagining things for themselves, and need to be primed with images of the potentially anxiety provoking situations. In contrast, the experimental group was primed with images from the video and did not need to image every situation from scratch. Additionally, the fact that a large number of the participants in the control group came from an Organic Chemistry course could also have affected the results. This course is a prerequisite for all the pre-medical professions and many of the students enrolled aspire to eventually seek jobs in healthcare. These students could be particularly attuned to the necessity of medical and dental health and are also likely to be less squeamish due to prerequisite courses that involve dissections of animals.

Another interesting finding in the study was that participants who expressed the conscious awareness that they need to see a dentist were also those who tended to score higher on the anxiety scale. This is evidence of avoidance behavior due to dental fear and anxiety. These participants are at higher risks of increasing their dental anxiety because the longer they

avoid seeing the dentists, the more likely they will be to actually have to undergo unpleasant dental procedures.

Unlike expected, participants of this study generally held very positive opinions of dentists in both groups. Eighty-seven percent of participants believe that dentists are capable and skilled professionals. A majority also acknowledged that dentists are sensitive to their individual needs and are patient throughout the dental process. This is similar to findings in other research about perception of dentist; "Patients are satisfied with the dental care they receive, value their dentist's competence and caring attributes, and believe their dentist is superior to other dentists" (Thibodeau & Mentasti, p. 659). The same could be said about rejecting that people see dentists as greedy. Surprisingly, 91.5% of the participants did not think that dentists are selfish. The participants of this study mostly rejected the idea that dentists are simply motivated by money and most did not fear that dentists would convince them to agree to expensive procedures. This combination of caring and altruism demonstrated that this sample had very positive ideas about dentists and dentistry in general.

This positive outlook on dentistry could also explain why so few participants express extreme dental anxiety. Positive associations with dental visits would lead to a less fearful sample. It is likely that even if the participants are fearful, they are confident enough in their own dentist to overcome barriers of avoidance behavior. Another possibility is that this young group of participants merely had not experienced many of the negative aspects of dentistry. Nearly all the participants were between ages 18 and 23, which generally is when the human body is healthiest. "Usually, blood pressure is normal, teeth have no cavities, and heart rate is steady" (Berger, 2011, p. 468). Due to this healthy state, it is unlikely that the majority of these participants required extensive dental work firsthand; therefore it is likely that this population

would not be as fearful as younger children or older adults who tend to have more problems. It is possible that before taking this survey, few people thought about dentistry on a very regular basis. “A Pew survey found that only 2 percent of emerging adults considered health their most important problem” (Berger, 2011, p. 467). Preoccupation with other aspects of life such as school and social life take mental precedence for this young group. It may just be that this sample of students simply had more important things to fear than dentists at this stage in their life.

It was also found that class standing at Pace University had no relationship with how often participants saw the dentists. All participants claimed to have seen dentists at one point in their lives, and most had seen the dentist over the past few years. Although all participants did express some levels of anxiety, they proceeded to seek dental treatments relatively regularly. This confirmed the hypothesis that people are likely to still visit the dentist to fit societal norms regardless of anticipated pain and fear. It was determined that 54.9% of the students still had their parents making their dental appointment. The closer the students were to the beginning of their college endeavor, the more likely it was observed that parents made dental appointments. Out of the six freshmen, five reported that their parents made their appointments, whereas only 13 out of 27 seniors said their parents made the appointments. Since most of the participants rely heavily on their parents for scheduling dental visits, they are less likely to miss routine dental scheduling because the responsibility is out of their hands much in the same way it was for their childhood. Parents are likely to schedule appointments at a place that is familiar to the participant already, reducing potential for anxiety. Therefore, a combination of likely good health and absence of responsibility is can be associated with low anxiety levels in this population.

Both psychoanalytic theory and behaviorist theory help explain the findings of this study. Psychoanalytic theory would address the issue that those students who showed low levels of anxiety still yearned for treatment of anxiety related to dentistry. These participants still displayed preconscious and unconscious fears that they were not willing to surface during the survey. There is an evident battle between the surface immunity the collective unconscious in participants.

Although the students in the video group were more fearful, this was only a very marginal difference. This was surprising in the sense that such horrifying images didn't evoke much more visible fear. This leads to examine behavioral theory; are we so desensitized to these images that we are no longer perceive them as fearful? Perhaps being exposed to dental situations has demonstrated the truth that dentistry is not as scary as we see in film, however; scary movies of any sort are meant to elicit a certain response. Our overexposure to frightening images of dentists may prevent us from every reaching that threshold.

Finally, humanistic theory as well as an evolutionary perspective can be employed to explain the findings as to why these young individuals are so keen on going to the dentist, knowing that the procedures are likely to be painful or uncomfortable at the least. By going to the dentist, people are enhancing their appearance, making them more desirable and more likely to reproduce. Although this is primitive in nature, beauty standards are constantly shifting to make us more attractive to potential sexual partners. This need for passing on ones genes and engaging in intimacy seems to be pushing itself ahead to first place on Maslow's traditional Hierarchy of Needs, ahead of safety (McLeon, 2007). In our changing world, we seem to be more willing to endure pain and discomfort in order to achieve the ideal look for ourselves and

for everyone around us. We may be keeping our fears from surfacing; following societal norms but yearn for someone to hear our quiet, unconscious pleas for help.

### *Limitations*

There are several limitations to this study that may have skewed the results in various directions. One may have been the sample we used to represent the population. Since the sample mainly consisted of young adults ages 19 to 22, many may not have reached the point in their life where dental neglect has begun to affect them. This sample of individuals is not likely to put medical and dental needs at the top of their priority list. Their interests mainly revolve around schoolwork and social activities. Students of this age usually have just moved away from parents or are still living with parents, so many decisions about dentistry have not fallen into their hands as of yet. Had we asked a sample of graduate students or individuals in their thirties, the results may have been drastically different, because after age twenty-five one's physical health is usually on the decline. Another issue about the sample is that it was all students from a private university in New York City, where tuition and living expenses are very expensive. Although many students do receive financial aid and have loans, it is unlikely that an overwhelming majority of these participants are from very low-income homes. Just going by the fact that they have chosen to pursue college indicated that this sample is aware that they must seek ways of bettering themselves through education and external sources. Also, since all the participants reported that they have seen a dentist in their lifetime, it is unlikely that they are unaware of the need for everyone to have dental care. They had access to dental care, meaning they were instructed about how to properly take care of teeth.

Another limitation to this study was the environmental factors that may have affected the participant's interest and involvement. All members of the video group were from a course on Death, Dying and Bereavement. They were instructed at the beginning of this class that they would have the option to watch a video and take a survey. Due to some technical errors, including a computer virus that projected distracting images, the video malfunctioned several times and the professor continued to lecture while the video issue was resolved. Students needed to refocus their attention to a very emotionally involved lecture, and then were asked to come back to the survey. All of these distractions, both from class time and from the actual survey clearly caused students to lose focus both in their class and on taking the survey. In the other group, many participants were given the survey approximately fifteen minutes before a lecture in Organic Chemistry. Although most people finished before the professor began lecturing, some participants proceeded to divide their attention between the survey and the class, perhaps skimming the questions and not giving them the time they require. This is evident in many of the surveys because participants frequently neglected to answer several questions or even full pages. Additionally, upon imputing the data, it was evident that people did not take time to individually read every question and bubble in answers, as entire rows of answers had lines put through them. For the purposes of this study it may have been more beneficial if participants left the data blank instead of potentially answering untruthfully.

The length of the survey may have also been problematic. Although no short answers were required, when participants received the survey, many commented that it was "seven pages long". In development, it was determined that less than six minutes would be required to thoroughly read the questions and answer them, but many participants took longer than expected. By the time they reached the third page, it was evident that most participants were tired of taking

it; the survey no longer peaked their interest thus variation on answers quickly declined and number of unanswered questions increased. Had the survey been shorter, the participants would likely answer all the questions more truthfully.

### *Future Research*

In future research, it would be interesting to see how differently people would respond to each item if an image or clip of the statement were represented with, or instead of the written word. It may be possible that people are so in tune with the digit world that they simply do not bother to paint pictures in their head unless probed. Research would also benefit from a longitudinal study using these participants. Since most participants seem to express very little anxiety, and overall positive perceptions of dentistry, it would be extremely interesting to see how views might change as these young adults are slowly weaned of the financial security of their parents. It would also be interesting to see if this population becomes more fearful as more dental issues and desires arise. Additionally, it would be interesting to see how levels of anxiety and perception of dentist different between students in private universities versus city and state school. There would be a wider range of socioeconomic status at schools that are less expensive and it would be interesting how this would effect perception and fear. Furthermore, more open-ended responses about past dental experiences would benefit this research because this would open the opportunity for more honest answers. Looking ahead, it would also be beneficial to not rely on self-report for future studies and future studies should implement more objective measures such as heart rate monitors to determine levels of anxiety for each item.

There have been many theories about phobias throughout the history of Psychology. From unconscious sexual desires to Pavlovian-type conditioning of a feared response the nature

of phobias is still unclear in many situations. But one thing remains consistent; phobias prevent people from living normal lives. With this new shift toward treatment versus finding the cause of the issue, therapists are finding it challenging to completely cure their patients. A very common Specific Phobia that is prevalent throughout the world, Dental Phobia, is the subject of much research. It seems that the most effective techniques are actually combinations of cognitive behavioral therapy, systematic desensitization and other relaxation methods. Although psychopharmacology is also used, studies continue to show those patients who seek therapy sessions are those who actually overcome their phobias at much higher rates and are likely to come back for follow-up dental appointments. (Thom, et al., 2000) Children and young adults in particular benefit from knowing exactly what is being done to them and they are able to overcome their fears by developing trust in the dentist. Nevertheless, dental health is largely overlooked in children and the lack of exposure and familiarity with procedures makes it difficult for many children to overcome their fears. It should be the goal of all dental institutions to spread awareness of the necessity of good dental health. By addressing the specific fears that children and young adults, healthy or disabled, therapists and dentists can develop novel ways of ridding people of these phobias. If dental phobias are properly extinguished, we can come closer to a world where only preventative dental medicine is necessary. Dentistry as a field needs to fight for a better image in media sources. By portraying dentists in a negative light, people form unrealistic stereotypes and may avoid dental treatments because of irrational fears or stigmas. Although a pull toward a more realistic ideal look is becoming favorable, dental care is still too expensive and inaccessible for many people. Various government health policy implementers need to become more aware of the expensive dentists have in their respective practices and be willing to compensate dentists and needy patients in a fair way. Access to better dentist can

increase perception of the field and decreased rates of dental related anxiety in our nation and across the globe.

### References

- Berger, K. S. (2011) *The developing person through the life span*. New York, NY. Worth Publishers.
- Bird, N. (1997). Treatment of childhood dental phobia using modified television visualization technique. *Contemporary Hypnosis: The Journal of the British Society of Experimental and Clinical Hypnosis*, 14(8), 80-83. Retrieved from <http://web.ebscohost.com.rlib.pace.edu/ehost/search/advanced?sid=5141d317-2e15-4921-ae7-e23534480b0c%40sessionmgr113&vid=1&hid=124>
- Bölte, S., Hallmayer, J. (2011) *Autism Spectrum Conditions: FAQs on Autism, Asperger Syndrome, and Atypical Autism Answered by International Experts*. Cambridge, MA: Hogrefe Publishing.
- Buchanan, H. (2009). Assessing dental anxiety in children: the Revised Smiley Face Program. *Child: care health and development*, 36(4), 534-538. Doi:10.1111/j.1365-22142009.01033.x
- Capps, D., & Carlin, N. (2011). Sublimation and Symbolization: The Case of Dental Anxiety and the Symbolic Meaning of Teeth. *Pastoral Psychology*, 60, 773-789.  
Doi:10.1007/s11089-011-0386-1
- Coriat, I. H., (1946). Dental Anxiety: Fear of Going to the Dentist, *The Psychoanalytic Review*, 33, 365-367.
- Compton, A. (1992). The Psychoanalytic View of Phobias Part I: Freud's Theories of Phobias and Anxiety. *Psychoanalytic Quarterly*, 61, 206-229.

- De Jongh, A., van den Oord, H. J. M., & ten Broeke, E. (2002). Efficacy of Eye Movement Desensitization and Reprocessing in the Treatment of Specific Phobias: Four Single-Case Studies on Dental Phobia. *Journal of Clinical Psychology*, 8(12), 1489-1503. Retrieved from <http://web.ebscohost.com.rlib.pace.edu/ehost/search/advanced?sid=5141d317-2e15-4921-ae7-e23534480b0c%40sessionmgr113&vid=1&hid=124>
- Geffen, D., & Oz, Frank (1986). *Little Shop of Horrors*. United States : Warner Bros.
- Hendrie, F. (2003). *Direct Interaction based on Tell-Show-Do Techniques*. Retrieved from <http://www.dentalfearcentral.org/help/psychology/tell-show-do/>
- Jankovic, S.M., Aleksic, D., Bahtijari, Z., Jelic, A., Klacar, J., Kovacevic, A., Mijailovic, N., Milovanovic, O., Petrovic, A., Radovanovic, A., Sovrlic, M., Zecevic, D. R. (2014) Risk factors for severe dental anxiety among medical students *Vojnosanitetski Pregled: Military Medical & Pharmaceutical Journal of Serbia & Montenegro* 71(1) 16-21 Doi: 10.2298/VSP1401016J DOI: 10.2298/VSP1401016J
- Lai, B., Milano, M., & Roberts, M. W. (2012). Unmet Dental Needs and Barriers to Dental Care Among Children with Autism Spectrum Disorder. *Journal of Autism Developmental Disorders*, 42 1294-1303. doi:10.1007/s10803-011-1362-2
- Liddell, A., Rabinowitz, M. F., & Peterson, C. (1997). Relationship Between Age Change in Children's Dental Anxiety and Perceptions of Dental Experiences. *Cognitive Therapy and Research*, 21(6), 619-631. Retrieved from [http://go.galegroup.com.rlib.pace.edu/ps/start.do?p=PPPC&u=nysl\\_me\\_pace&authCount=1](http://go.galegroup.com.rlib.pace.edu/ps/start.do?p=PPPC&u=nysl_me_pace&authCount=1)
- Longo, S. (2014) Dentistry in the movies! Retrieved from <http://sallongo.com/movies.html>

- Murshid, Z. M. (2011). Characteristics and Dental Experiences of Autistic Children in Saudi Arabia: Cross-Sectional Study. *Journal of Autism Developmental Disorders*, 41 1629-1634. Doi:10.1007/s10803-011-1188-y
- Ratner, B., Stern, J., & Gordon, S. (2011) *Horrible Bosses*. United States. Warner Bros. Pictures.
- Saint Louis, C. (2010, October, 19). When That Smile Is Too Perfect. *New York Times*. Retrieved from [http://www.nytimes.com/2010/10/21/fashion/21SKIN.html?\\_r=0](http://www.nytimes.com/2010/10/21/fashion/21SKIN.html?_r=0)
- McLeod, S. (2007) Maslow's Hierarchy of Needs. *Simply Psychology*. Retrieved from <http://www.simplypsychology.org/maslow.html>
- McLeod, S. (2008) Defense Mechanisms. *Simply Psychology*. Retrieved from <http://www.simplypsychology.org/defense-mechanisms.html>.
- Thibodeau, E., Mentasti, L. (2007). Who Stole Nemo? *Journal of the American Dental Association*, 138(5), 656-660.
- Thom, A., Sarory, G., & Jhren, P. (2000). Comparison between one-session psychological treatment and benzodiazepine in dental phobia. *Journal of Consulting and Clinical Psychology*, 68(3), 378-387. Doi: 10.1037/0022-006X.68.3.378
- TNT Dental (2014) Retrieved from <http://www.tntdental.com/our-work.html>
- Wallace, B. B., MacEntee, M. I. (2012) Access to dental care for low-income adults: Perceptions of affordability, availability, and acceptability. *Journal of Community Health*. 37, 32-39. Doi: 10.1007/s10900-011-9412-4
- Walters, G. & Stanton, A. (2003) *Finding Nemo*. United States. Pixar Animation Studios.
- Watson, J. B., & Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology*, 3, 1-145. Retrieved from [http://go.galegroup.com.rlib.pace.edu/ps/start.do?p=PPPC&u=nysl\\_me\\_pace&authCount=1](http://go.galegroup.com.rlib.pace.edu/ps/start.do?p=PPPC&u=nysl_me_pace&authCount=1)

Welly, A., Lang, H., Welly, D., Kropp, P. (2012) Impact of dental atmosphere ad behaviour of the dentist on children's cooperation. *Applied Psychosocial Feedback*. 37, 195-204. Doi:

10.1007/s10484-012-9189-y.

Zimmermann, S., Hutchins, C. (2003). *7 Keys to comprehension*. New York, NY: Three River Press.

## Appendices

### Appendix I

**I am conducting this research project for my Honor's Thesis. I am very grateful for your participation. This study is entirely confidential; there is no need to put your name on the paper and your answers will never be traced back to you upon completion of this questionnaire. Please answer all questions as truthfully as possible.**

**If any part of this survey disturbs you in any way, please contact my advisor – Dr. Charone-Sossin, who is a clinical psychologist, who would be happy to talk to you. Her email is [jcharonesossin@pace.edu](mailto:jcharonesossin@pace.edu).**

**If you are interested in any of my results, please contact me.**

**my email: [jg85670n@pace.edu](mailto:jg85670n@pace.edu)**

**THANK YOU**

Appendix II

PLEASE CIRCLE YOUR RESPONSE AND ANSWER ALL QUESTIONS:

1) Do you think this is an accurate depiction of dentists in film?      YES    NO

2) Do you believe that this is the typical mindset of a dentist?      YES    NO

3) Is this how you feel when you anticipate a dental procedure?      YES    NO

## Appendix III

**Please answer all questions. Thank You!**

On a scale of 1 to 5 please rank how anxious these words make you feel (1 = no anxiety & 5 = extreme anxiety)

	1	2	3	4	5
A dentist scraping my teeth	<input type="radio"/>				
The sight of someone else's blood	<input type="radio"/>				
The sight of a dental drill	<input type="radio"/>				
A dentist holding a syringe	<input type="radio"/>				
An injection into my gums	<input type="radio"/>				
Toothache	<input type="radio"/>				
Painful dental procedures	<input type="radio"/>				
The sight of my own blood	<input type="radio"/>				
Dental surgeries	<input type="radio"/>				
Having dental fillings	<input type="radio"/>				
Dental checkups	<input type="radio"/>				
A drill being used on my teeth	<input type="radio"/>				
Pain in my gums	<input type="radio"/>				
A dentist holding a drill	<input type="radio"/>				
Having dental X-rays	<input type="radio"/>				
Being told you have a cavity	<input type="radio"/>				
Dental Cleaning	<input type="radio"/>				
Flossing	<input type="radio"/>				

Do you hold these beliefs about yourself and dentistry in general?

	Yes	No
Dentists do as they please	<input type="radio"/>	<input type="radio"/>
Dentists are often impatient	<input type="radio"/>	<input type="radio"/>
The dentist does not care if it hurts	<input type="radio"/>	<input type="radio"/>
Dentist are often incapable	<input type="radio"/>	<input type="radio"/>
Dentist think you act childish	<input type="radio"/>	<input type="radio"/>
Treatments often fail	<input type="radio"/>	<input type="radio"/>
My teeth can't be saved	<input type="radio"/>	<input type="radio"/>
I should be ashamed about my teeth	<input type="radio"/>	<input type="radio"/>
My teeth might break	<input type="radio"/>	<input type="radio"/>
I can't stand pain	<input type="radio"/>	<input type="radio"/>
I am a tense person	<input type="radio"/>	<input type="radio"/>
The dentist is selfish	<input type="radio"/>	<input type="radio"/>
The dentist just wants my money	<input type="radio"/>	<input type="radio"/>
I will be sucked into an expensive dental procedure	<input type="radio"/>	<input type="radio"/>

Is this how you feel during a dental treatment?

	Yes	No
This treatment will hurt	<input type="radio"/>	<input type="radio"/>
My teeth will break	<input type="radio"/>	<input type="radio"/>
Something surely will go wrong	<input type="radio"/>	<input type="radio"/>
I am helpless	<input type="radio"/>	<input type="radio"/>
I can't escape. I'm locked in	<input type="radio"/>	<input type="radio"/>
The sound of the drill frightens me	<input type="radio"/>	<input type="radio"/>
The dentist will drill into my tongue	<input type="radio"/>	<input type="radio"/>
The nerve will be touched	<input type="radio"/>	<input type="radio"/>
I have no control over what happens	<input type="radio"/>	<input type="radio"/>
I will suffocate during treatment	<input type="radio"/>	<input type="radio"/>
I will certainly have pain afterwards	<input type="radio"/>	<input type="radio"/>
The dentist will lose control over his drill	<input type="radio"/>	<input type="radio"/>

How comfortable would you feel about the following situations?

	Very Comfortable	Somewhat Comfortable	Neutral	Somewhat Uncomfortable	Very Uncomfortable
Telephoning for a dental appointment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having your teeth examined by a dentist	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Having a dentist criticize the condition of your teeth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Asking the dentist to be more careful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Getting a tooth pulled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drilling your tooth to have a cavity filled	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How intense are your concerns about going to the dentist as you compare them to other fears or frightening experiences you might have had?

- Not intense at all
- Relatively not intense
- Neutral
- Somewhat intense
- Very intense

Have you avoided going to the dentist in the past because of fear or anxiety?

- Yes
- No

Are there instances in which you have avoided listening to movies or reading stories about dental topics?

- Yes
- No

Have you heard stories from others that have prevented you from seeing a dentist?

- Yes
- No

How long since you last saw a dentist?

- less than 6 months
- 6 months - 1 year
- 1 - 2 years
- 2 - 5 years
- Over 5 years
- Never been to the dentist

Over the past 2 - 3 years, approximately how often have you been to the dentist?

- Every 6 months or more
- Once a year
- Once every 2 years
- Less than once every 2 years

Since you started college how often have you been to the dentist?

- Never
- Every 6 months
- Once a year
- Once every 2 years
- Less than once every 2 years

Who is usually responsible for scheduling your visits to the dentist?

- Myself
- Parents
- Spouse
- Other

Do you presently need to see a dentist?

- Yes
- No

If you found out about a treatment program designed to help people cope with anxiety or fear associated with dental visits, how interested would you be in participating?

- Very interested
- Neutral
- Uninterested

Current Status at Pace

- Freshman
- Sophomore
- Junior
- Senior
- Other

Gender

- Male
- Female

Current place of residency

- Dorm
- With parents
- Other

Current Age

- Under 18
- 18-20
- 21-23
- 24-30
- 30+