The Implementation of Alternative Pain Control Methods by Dental Hygienists

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THE IMPLEMENTATION OF ALTERNATIVE PAIN CONTROL METHODS BY DENTAL HYGIENISTS

A Capstone Experience/ Thesis Project
Presented in Partial Fulfillment of the Requirements for
the Degree Bachelor of Science with
Honors College Graduate Distinction at Western Kentucky University

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2016

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ABSTRACT

As a dental hygienist, it is important to understand new concepts and techniques that can contribute to a more comfortable setting for patients who experience dental anxiety. Alternative pain control methods can assist in alleviating patient anxiety, therefore, providing a more efficient and relaxed clinical atmosphere for both patient and clinician. Some of the methods discussed are: guided imagery, deep breathing, muscle relaxation, hypnosis, acupressure, essential oil diffusion, audio distraction, and visual stimuli. After reviewing the literature the researcher found that dental anxiety affects patient compliance, their overall health, and willingness to attend regular dental visits. The purpose of this research was to find out how many dental hygienists are aware of alternative relaxation techniques and how many apply them during patient treatment. The research was conducted through a survey. The results revealed that there is a significant number of dental hygienists that are unfamiliar with alternative pain control methods; however, the majority is interested in learning about these techniques. Perceiving these trends enables dental professionals to provide a higher standard of patient care.

Keywords: Alternative Pain Control Methods, Dental Hygienist, Dental Anxiety, Dentistry
Dedicated to my family, friends, and the WKU Dental Hygiene Faculty
ACKNOWLEDGEMENTS

I would like to remark my gratitude to the people who have granted me their guidance and support throughout my college career.

First of all, I would like to thank my family, because without them I would not be where I am today. In specific I want to thank my parents for raising me to be a hard worker and to never give up.

I would like to thank Dr. Joseph Evans for being my advisor and first reader for this thesis. I truly admire his dedication and passion for teaching and preparing his students to be successful after college. Without his constant help and guidance, this thesis would not have been possible. I will always appreciate all the help he provided me with on this thesis and throughout my path in the Dental Hygiene Program.

I want to thank Ms. Dianna Ransdell for being my second reader. Her feedback helped me to stay organized with my research. She has not only been helpful with my thesis but has also given me vital advice when it comes to the clinical aspect of dental hygiene.

Thank you Dr. Lynn Austin for your support on this thesis and in my course through the dental hygiene program. I could not have gotten through the program without your help. I will always be grateful for all of your support.
I would also like to thank the rest of the Dental Hygiene Faculty, every single one of you have played a vital role in my path through Western Kentucky University. I will always be grateful.
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FIELDS OF STUDY

Major Field: Dental Hygiene
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CHAPTER 1

INTRODUCTION

Dental hygienists can encounter patients with anxiety during treatment on a daily basis. Dental anxiety is a common obstacle encountered during patient treatment that can lead to difficulty in completing treatment in a timely manner and can also alter patient compliance. Approximately 35 million Americans experience severe dental anxiety that keeps them from receiving the dental care that they need (Biggs, 2003). There are a significant number of people that are not getting adequate treatment. Action should be taken to help individuals affected by this phenomenon. As research continues to be conducted, a link between oral health and overall systemic well-being becomes more evident. In several studies, researchers have found that patients who are avoiding treatment due to dental anxiety have more caries, missing teeth, and periodontitis compared with matched controls (Skaret, 2005). According to a large epidemiological study in Norway, phobic patients report lower quality of life, represented higher rates of unemployment, sick leave, psychosomatic symptoms and negative social effects (Skaret, 2005). As a result, a dental hygienist can play a key role in not only improving the oral health of the patient, but also have an impact on their overall well-being. Malamed (2004) found 75% of medical emergencies in the dental office are related to stress and anxiety and therefore are preventable. In order to provide suitable care in a safe environment, it is very important to do everything possible to prevent medical emergencies. With this in
mind, helping the patient cope with their dental anxiety could help in the prevention of medical emergencies. Alternative pain control methods can assist in alleviating patient anxiety, providing a more efficient and relaxed clinical atmosphere for both patient and clinician. These techniques are free to both the clinician and the patient, and can be an alternative to sedatives (Cohen, 2001). The first step towards incorporating alternative pain control methods in the dental office is to find out how familiar dental hygienists are with these techniques. This study looked at a sample of dental hygienists that graduated from Western Kentucky University’s Dental Hygiene Program between 2011 and 2015. The purpose of this study was to determine the familiarity of dental hygienists with alternative pain control methods; and of those familiar with them, how many were actually using them. This study served to identify what alternative pain control methods are most popularly used, and how these benefit patients. By conducting this survey, the researcher was able to ascertain the level of knowledge pertaining to this treatment modality and formulate ideas on how alternative pain control methods usage can be increased in the dental office. As new trends develop within the dental field, it is important to educate dental hygienists about these trends that will assist in producing a relaxed environment for patient treatment and will enable dental professionals to provide a higher standard of patient care.

CE/T Statement

There is some awareness of alternative pain control methods by dental hygienists, yet these approaches are minimally used within the dental setting.
CHAPTER 2

LITERATURE REVIEW

Dental hygienists encounter patients with dental anxiety on a daily basis. Hunt, George, Wilder, Maixner and Gaylord (2005) examined the effects of a short, simple relaxation intervention on dental anxiety and pain perception during a dental prophylaxis. They began with the thought that dental anxiety affects a significant portion of the population and can lead prospective patients to avoid treatment.

A convenience sample of 17 healthy individuals between the ages of 18 and 60 that reported dental anxiety participated in this study. Nine of the seventeen respondents were females and eight were males. After the individuals were recruited, the authors used block randomization to choose the experimental group. The procedure performed on all the individuals consisted of quadrant scaling divided into three visits. The recorded measurements were blood pressure, and reported pain perception prior to scaling, midpoint, and after the scaling during all three appointments. The difference between the two groups was that the experimental group received relaxation training at the second appointment.

Results of the study varied between the control and the experimental group. Among all three visits in the control group, there was no indication of statistically significant differences when it came to blood pressure measurements in the individuals. In comparison, between the first and second visit and the first and third visit, there were
statistically significant differences (p < 0.05) in the blood pressure measures within the experimental group. In regards to pain perception and DAS (dental anxiety) scores between the screening and post-treatment visits, both the control group and the experimental group showed reductions in these variables.

Looking at it from a more narrow perspective, Skaret and Soevdsnes (2005) were interested in the role a dental hygienist has on prevention and treatment of the fearful dental patient. They started their article explaining how the etiology of dental anxiety is a very complex subject. They emphasized the association a traumatic dental experience during a patient’s childhood can have on their present dental anxiety. Along with this idea, they looked at various studies to find the prevalence of dental anxiety among different groups. The authors also brought up the consequences of avoiding dental care due to anxiety and fear. The ultimate idea behind the article was that, many times, the dental hygienist is the primary health care contact. Therefore, the health care provider should be prepared to help patients cope with their anxiety.

Skaret and Soevdsnes (2005) explored the prevalence of dental anxiety and found that regardless of the culture, population, or country the prevalence was between 4% and 20%. On top of this, there was a higher incidence in children and adolescents, although they reported that this began to decrease when the patients reached the age of 19. With this in mind, the researchers also examined the effect of previous experiences of pain on current dental anxiety in patients. It was found in a Norwegian study, that adolescents who reported more than one unpleasant or painful experience during their childhood years had a 10 times higher possibility of being classified in the dental anxiety group, as compared to patients who only experienced pain once or never.
In their studies Skaret and Soevdsnes (2005) also found that people who were not seeking treatment due to their dental anxiety have more missing teeth, more cavities, and a higher incidence of periodontitis, when compared to control groups. The researchers also found that patients who identified themselves as having dental phobia reported lower quality of life, displayed higher rates of unemployment and psychosomatic symptoms, as well as negative social effects.

Skaret and Soevdsnes also acknowledged the fact that when the patient is not willing to cooperate, it creates a very stressful situation for the health care provider. In order to improve patient compliance, the researchers noted the importance of an interpersonal relationship between the patient and the provider of care. The researchers believe that a dental hygienist should be able to establish rapport and build trust so that the patient could have control of their dental anxiety.

Biggs, Kelly, and Toney (2003) also acknowledged the effect dental anxiety has on patient compliance and how this can also lead to poor oral health. The researchers wanted to see if implanting self-taught anxiety reduction techniques, such as deep diaphragmatic breathing and focused attention, would be effective in reducing anxiety in patients. They conducted their study on a controlled group of 272 patients between the ages of 17 and 79. The participants were seeking treatment at a private practice dental office and all agreed to participate in the study. The eligibility of the patients was not affected by their prior/current oral health care procedure nor medication. The study included a pretreatment questionnaire that compiled general demographics, anxiety measures, informed consent, oral health history, and anxiety reduction groups (for breathing and focusing groups only). The oral health history also included the frequency
of visits to the dentist. In the post-treatment questionnaire, there was a scale for the patients to rate the level of anxiety experienced during prior oral health treatments. Also, the participants reported if they used an anxiety-reduction technique and whether or not this helped in the reduction of their anxiety. Those patients who chose not to use an anxiety-reduction technique were asked to state why they decided not to use one. Along with the offered anxiety-reduction techniques, the participants were asked to explain other techniques they had used during previous oral health visits to cope with their anxiety. The researchers measured dental anxiety with a modified version of the Dental Anxiety-Scale Revised. This scale is based on the Corah Dental Anxiety Scale. Both of these scales have been found to be reliable and give valid measures of dental anxiety. The deep diaphragmatic breathing and focused attention techniques were self-taught to the patients by a set of written instructions that were included in the questionnaire packet. The purpose of the breathing technique was to maintain the patient’s attention as well as to reduce anxiety by means of slower and deeper breaths. The participants also had the option of accompanying their breaths with a word or phrase. The other anxiety-reduction technique, focused attention, directed the patient to focus and maintain their attention on a neutral part of their body that was not part of the dental procedure. The body part that was suggested to the patients was their feet. The control group was not offered an anxiety-reduction technique.

Biggs, Kelly, and Toney (2003) found that performing a technique without assistance, in particular one that had not been practiced, may have been too difficult for most patients in the oral health procedure setting. With the DAS –R scale, the researchers found that 26 of the 272 participants experienced high dental anxiety. When the mean
scores were taken into consideration, the mean scores for women were higher than the ones for men; however, not significantly higher. The researchers also found that high dental anxiety was a phenomenon that was found more in patients with less frequent dental visits. They analyzed this as being predictable due to dental anxiety being associated with dental treatment avoidance. To display this association, Gatchel (2003) found that, of individuals that experienced high dental anxiety, 46.0 to 56.8% avoided dental treatment, while only 28.6 to 37.1% of patients with low dental anxiety avoided treatment. Also, patients with few or no visits to their current dentist were more likely to be anxious. In comparison, patients who had more frequent visits felt more comfortable with the treatment they had to receive. Based on Kent’s research, the participants with high dental anxiety could over report the level of their anxiety during previous oral health procedures, meanwhile, participants with less anxiety could be more accurate on the level of their dental anxiety experienced in the past. When looking at the patients who incorporated an anxiety-reduction technique of their own and had reported infrequent oral health care visits (0 to 5), it was found that they were significantly more likely to have reduced dental anxiety in comparison to the patients who used deep breathing or focused attention. The researchers think that this could have been due to the feeling of imposed expectations that were not present in the control group. This finding indicated that an anxiety-reduction technique should probably be practiced at a level that makes the patient feel comfortable and confident while using it during an oral health procedure. The researchers also emphasized the importance of the involvement of the oral health professional in reminding the patient to use these relaxation techniques. In the group of participants that reported not using either one of the anxiety-coping techniques, ten of
them said it was because they forgot to try it. Along with the ten, four of the other participants said that they would prefer to use other techniques. An additional two patients said that these techniques were too difficult to perform during their dental procedure. A trained dental hygienist could help in all of these scenarios by reminding the patients of these techniques and making them feel more confident and comfortable using them.

A total of 90 participants responded to the question of whether the anxiety-reduction techniques were effective. Of those patients, 13% reported that concentrating or modifying their breathing was beneficial. An additional 10% stated that focusing or moving a body part was effective for them. Almost 8% expressed that focusing on an object in the environment helped them reduce their anxiety. Lastly, 8.9% communicated that watching TV or listening to music reduced their anxiety. To a certain degree, these results support the effectiveness of these techniques. However, the researchers also acknowledged that the participants who declared these techniques effective must have felt that they were proficient to a certain level in performing these techniques. The researchers believe that it is likely that lack of practice could also have influenced the effectiveness of these techniques.

After the study, the researchers suggested to oral health professionals to ask their patients about their anxiety and what their preferred technique is to help cope with that anxiety. If the patient has a technique that they practice, they should definitely be encouraged to use it as it could really play a role in reducing anxiety.

identifying what causes fear, anxiety, and pain during dental treatment, as well as the benefits music therapy and aromatherapy have in patients with fear and pain. One of the first things she acknowledged was the underestimation of dental anxiety. The researcher found that 85% of patients experienced some level of anxiety, while 15% stated that they felt completely relaxed. Another finding discussed was that 35-40% of the patients reported having levels of stress due to the unpredictability of the situation. The sound and smell at a dental clinic also played a factor in the stress levels of the participants. Of the participants, 40% reported anxiety provoked by the sound of the instruments, while 25% noted anxiety due to the smell of the office. The researcher suggested that the use of aromatherapy and music therapy could help these patients.

According to the National Association for Holistic Aromatherapy, aromatherapy is used by inhaling and applying essential oils to produce a variety of effects that induce physical, emotional, spiritual and mental health and balance. Aromatic oils have been used for over 5,000 years all over the world (Cohen, 2001). Some of the documented benefits of essential oils are their antibacterial and antiviral properties. It is especially important to emphasize the fact that, unlike antibiotics, bacteria usually do not develop resistance to essential oils. According to Anderson (2001) using aromatherapy creates a more caring environment for the patients. This type of environment allows the patient to perceive less pain causing them to be generally more pleased with the dental treatments. Reassuring patients is an important factor in patient compliance and willingness to return to future appointments. The use of aromatherapy can increase trust and loyalty between the dental personnel and patient. In order to implement this type of relaxation technique, dental hygienists need to have a specific knowledge about the oils being used. The oils
that Anderson found to be beneficial in reducing anxiety were lavender, clary sage, geranium, marjoram, neroli, rose, and ylang ylang. The oils can be used by a diffuser in the clinic room, putting a drop on the patient’s bib, or even in the clinician’s mask. This can lead to a more refreshed and relaxed environment.

Cohen also looked at the effect music therapy has on dental anxiety. She looked at a study done by Miluk-Kolas and Matajek (2001) that involved 100 patients between the ages of 20-60 years. Out of the participants, 72 were men and 28 were women who were randomly assigned to either a control or music-listening group. When the two groups were compared, the physiological responses of the music listeners returned to initial values within an hour, while the non-music listeners stayed at the higher levels throughout. Looking at the study, it appears that implementing music listening to dental hygiene treatment could be a way to give patient control inexpensively and, in return, create an environment of trust between the clinician and the patient.

Fehrenbach (2004) was interested in how other stress reduction protocols work and how they could prevent medical emergencies in the oral health environment, as well as improve posttreatment healing of those patients at risk. It is the responsibility of the dental professional to determine if the patient has the ability to withstand the planned oral treatment with the patient’s current medical history. In the discussion, the researcher noted that the patients that are considered to be at a higher risk for a medical emergency might not be able to cope with the same amount of stress as a healthy individual. Fehrenbach noted in her study that, according to the National Institutes of Health, there are 35 million Americans who avoid visits to the dentist until there is dental pain.
Fehrenbach also found that, according to several studies, profound anesthesia with the use of a vasoconstrictor prevents a patient with a cardiovascular disease from producing endogenous epinephrine. As a result, the stress level of these patients could be increased; therefore, there could be a higher chance for a medical emergency. It was also stated that imagery, relaxation training, as well as hypnosis can all be used to treat acute procedure pain. One of the relaxation techniques that Fehrenbach examined was hypnosis. In her research, she found that hypnosis gives participants a higher percentage of active immunological cells that help the patient secrete endorphins that can stimulate the closing of the pain gate. This technique could be self-taught and make the patient become relaxed in only a few minutes.

The current research looks at the effects of dental anxiety, the way this phenomenon arises in a patient, the consequences associated with it, and the different types of relaxation techniques. Even though there is a considerable amount of research on dental anxiety, a measure of the familiarity and implementation of relaxation techniques by Western Kentucky Dental Hygiene graduates from 2011 to 2015 is still missing. The following chapter will explain what methodology was used to gather the data necessary to find this information.
CHAPTER 3

METHODOLOGY

Western Kentucky University’s Institutional Review Board granted approval to this project in January 2016 (IRB 16-268). In order to conduct the study, a 17-question survey was created using Qualtrics® software. (Appendix A) Respondents were asked to state their familiarity with alternative pain control methods and their implementation in practice by dental personnel. More specifically, the survey asked about the familiarity with guided imagery, deep breathing, muscle relaxation, hypnosis, acupressure, essential oil diffusion, audio distraction, and visual stimuli. There was also an opportunity for the respondents to include any other anxiety-reducing techniques they practiced with their patients. A link to the questionnaire was then emailed to all Western Kentucky University Dental Hygiene Alumni that graduated between 2011 and 2015. Prior to responding, participants were directed to read over the consent document and were informed that all responses would remain anonymous. The survey remained active for a period of one month. A reminder email was provided at a two-week interval. An analysis of responses was performed after collection of the data. The findings from this study will be discussed in the next chapter.
CHAPTER 4

RESULTS

In this chapter the results from the survey conducted will be discussed and analyzed. The group of people surveyed included alumni from Western Kentucky University’s Dental Hygiene Program between 2011 and 2015. The survey was completed by a total of 106 participants out of a pool of 140 WKU dental hygiene graduates. The data obtained contained information about the demographics of the dental hygienists, size of the office in which they practice, as well as familiarity and implementation of alternative pain control methods.

There were a total of 108 people who participated in the survey but only 106 completed the entire survey. Out of those participants who completed the survey, 100% were females. Next, the survey inquired about the age of the dental hygienist. (Figure 1) The majority of respondents (81%) were between 20-29 years old (n=86). This could be determined typical since the survey was sent to recent alumni. The rest of the survey responders were made up of 14% between 30-39 years (n=15), 4% between 40-49 years (n=4), and 1% between 50-59 years (n=1).
Another question sought to determine the amount of time the dental hygienists had been practicing dental hygiene. One hundred of the participants stated to have been practicing from 1-5 years (94.34%), while 6 stated to have been practicing for 6-10 years (5.66%). These results correlate with the alumni years used in the research.

Next the participants were asked about the age of the office in which they practice. (Figure 2) The researcher found that the majority of the participants worked at an older office. Forty six stated that they practiced in an office that was 16 years or older (43%), 23 identified practicing in an office that was 11-15 years old (21%), 18 answered that they worked in an office that was 6-10 years old (17%) , and 19 stated that they practiced in an office that was 1-5 years old (19%).
The next question inquired about how many dental hygienists practiced at the participant’s office (Figure 3). Fifteen replied that only one was practicing at the office (14.15%), 30 said that two practiced at the office (28.3%), 25 said that there were three hygienists practicing (23.58%), 14 replied that four or more were working in the office (13.21%), while 22 replied there were five or more (20.76%).
Besides wanting to know the number of hygienists practicing in the office, the researcher was also interested in how many dentists where working at their present office (Figure 4). The results indicated that 44 of the respondents (41.50%) worked in an office with one dentist, 43 (40.57%) worked in an office with two dentists, 15 (14.16%) worked in an office with three dentists, and 4 (3.77%) worked in an office with four or more dentists.

Next, the researcher was interested in the location of the dental hygienists (Figure 5). The majority of them (n = 65) stated that they practiced in Kentucky (61.32%) and Tennessee (n= 37, 34.90%). Besides those participants, there were two (1.90%) who resided in Colorado, one (.94%) in South Carolina, and one (.94%) in Iowa. It is probably normal to see a higher concentration of alumni in the Kentucky and Tennessee area due to the school being in Bowling Green, KY.
The next part of the questionnaire was concerned with the respondents’ familiarity of various alternative pain control methods (Figure 6). The first question in relation to that asked whether the hygienist had any sort of familiarity with any of the methods. 43 (40.56%) stated that they were familiar, while 63 (59.44%) stated that they were not familiar with them.
If the participant answered that they were not familiar with alternative pain control methods, they were then automatically forwarded to a question that asked them whether or not they would be interested in becoming familiar with the techniques of alternative pain control methods and their implementation in the dental practice setting (Figure 7). Out of the 63 participants that stated an unfamiliarity, 50 (79.36%) answered that they would be interested, while only 13 (20.64%) said they would not be interested. For those who were unfamiliar with alternative pain control methods, after they completed this question, this was the conclusion of their survey.

![Figure 7](image)

**Figure 7**
**Interest towards learning Alternative Pain Control Methods**

If the participant stated that they were familiar with alternative pain control methods, the next question dealt with finding out the methods with which they were familiar. The participants had the ability to select from various methods with which they were familiar (Figure 8). Deep breathing was the technique with which most participants were familiar (n=32). Following deep breathing was audio distraction (n = 27). The third most popular technique was essential oil diffusion (n=23), followed by visual stimuli.
(n=21). The remaining techniques with which the respondents were familiar were muscle relaxation (n = 10), acupressure (n = 7), hypnosis (n = 5), and guided imagery (n = 1).

After the dental hygienists were asked about their familiarity with different types of alternative pain control methods, they were asked whether these techniques were being used in their dental office (Figure 9). Twenty two of the participants stated that these methods were being implemented in their present office while the other 21 participants said they were not being used in their present dental office.
If the dental hygienist answered that alternative pain control methods were not being used in their current clinical setting, they were forwarded to a question that asked them whether they believed incorporating alternative pain control methods would be beneficial for both patients and team members (Figure 10). Nineteen stated that they would be beneficial (90%), while only two believe they would not be (10%). This displays how there is a belief among dental hygienists that these techniques could be beneficial to the dental team and patient.

![Figure 10](image)

**Figure 10**
**Would Incorporating Alternative Pain Control Methods be Beneficial?**

The participants who reported a use of alternative pain control methods in their current dental office, were asked who performed these techniques. There was an option to select one or all of the team members (Figure 11). Twenty-two answered they were performing them (95%), fourteen stated that another dental hygienist performed them (61%), fifteen stated that the dentist was performing them (65%), and fourteen reported that dental assistants were performing them (61%)
The next question in the survey prompted the respondents to indicate which types of alternative pain control they used in their practice. Eighteen used audio distraction, twelve used visual stimuli, ten used deep breathing, seven used essential oil diffusion, and one used muscle relaxation. None of the participants used guided imagery, acupressure, nor hypnosis.

Once the researcher analyzed what alternative pain control methods were being used and who were the ones using them, the researcher wanted to find out where the dental hygienists were learning about these techniques (Figure 11). Once again the participant could select all that applied. Nine participants stated that they learned about alternative pain control methods during dental hygiene school (39%). Thirteen stated that learned about the techniques through personal experience (57%). Six responded that they learned them through a continuing education course (26%). Finally, thirteen selected that they learned it from someone in the dental office (57%).

Next, the researcher asked the participants, based on their practice, how beneficial are alternative pain control methods to them and the typical patient (Figure 12). None of
the respondents classified it as not beneficial. Three respondents classified them as slightly beneficial (14%). Twelve participants classified them as moderately beneficial (54%). Four of the dental hygienists stated that they were highly beneficial (18%). The other three participants said that they were extremely beneficial (14%).

Finally, the last question asked the participants if they personally performed alternative pain control methods and how long they have incorporated these into the private practice setting (Figure 13). Sixteen of the participants stated that they had been using them for 0-3 years (73%). Three of the dental hygienists said they had been practicing them for 4-6 years (14%). Another five participants said that they did not personally do not perform alternative pain control methods (14%).
The next chapter will examine how these results can be utilized within the private practice setting. Specifically, the researcher will determine ideas for moving forward in finding ways to combat dental anxiety in the dental office and preparing dental hygienists to provide the most optimal care.
CHAPTER 5

CONCLUSION

Dental anxiety plays a major role in the avoidance of dental treatment of approximately 35 million Americans (Biggs, 2003). What can be done about this? Dental professionals can help these individuals overcome their fear in order to receive adequate treatment to improve their oral health as well as their systemic and social health. Before the researcher conducted the survey and analyzed the results, it was hypothesized that dental hygienists had some familiarity of alternative pain control methods, but that they were only being used minimally in the dental setting.

After the data was collected, the researcher discovered that there was some familiarity; however, there were a higher percentage of the participants who expressed unfamiliarity. Further, of those who were not familiar with the techniques, the majority of them showed an interest in learning about alternative pain control methods. This is highly significant to the research conducted because this finding displays a need to do a better job of exposing dental hygienists of all ages to alternative pain control methods. Once dental hygienists are exposed, there should be an education-based program that should explain thoroughly how to use these methods along with information about the advantages and disadvantages to the clinician and to the patient. Only 26% of the participants using these techniques learned them through a continuing education course. This percentage could be increased by offering more training in this area. If dental
hygienists felt more confident with using these techniques, it is likely they would be more apt to offer alternative pain control methods to patients who experience dental anxiety. This is important because these methods could be alternatives to sedatives and are at no cost to both the patient and clinician. Also, incorporating these methods could potentially increase patient compliance by helping them focus on what the clinician is asking them to do instead of focusing on their fear. Another result could be that a patient would be more willing to return for future appointments since they realize that their clinician will work with them through their dental anxiety.

Of those who stated being familiar with and using alternative pain control methods within their dental office, the biggest percentage of them classified the techniques as being moderately helpful in patient treatment (55%). This could suggest that with better training on both sides, the clinician and the patient, the efficacy of these methods could be increased. Along with this idea, a better communication between the clinician and patient could potentially increase the bond between them. This could potentially result in an increase in the effectiveness that alternative pain control methods have on patients. Of the participants who practiced in an office where these methods were not being used, 89% (n=17) believed that incorporating these techniques would be beneficial for both patients and team members. Here one can see that there is a willingness to incorporate these in the dental offices where alternative pain control methods are not currently being used.

Ultimately, every hygienist should strive to provide adequate treatment to every patient in a safe environment. Alternate pain control methods can be a supportive and an accessible tool in assisting patients cope with their dental anxiety. These methods can
also help the patient feel like they are in a safe situation and enhance the strength of the relationship between the clinician and the patient. This secure bond can help alleviate some of the anxiety connected to dental treatment (Skaret, 2005). As new trends develop, it is vital and necessary for dental hygienists to be trained in these techniques so that dental professionals can offer the highest optimal care.

After performing this study, more research is suggested to acquire information about anxiety techniques from the patients’ point of view. It would be beneficial to analyze the familiarity of patients with alternative pain control methods and whether they would be interested in utilizing this along with their dental hygienist. Gathering data from both clinician and patient would allow for a more comprehensive evaluation and resolution of dental anxiety.
REFERENCES


APPENDIX A

1. Are you male or female?
   • Male
   • Female

2. How old are you?
   • 20-29
   • 30-39
   • 40-49
   • 50-59
   • 60 or greater

3. How long have you been practicing dental hygiene?
   • 1-5 years
   • 6-10 years
   • 11-15 years
   • 16 years or more

4. What is the age of the office at which you practice?
   • 1-5 years
   • 6-10 years
   • 11-15 years
   • 16 years or more

5. How many hygienists work at your present office including yourself?
   • 1
   • 2
   • 3
   • 4
   • 5 or more
6. How many dentists work at your present office?
   - 1
   - 2
   - 3
   - 4 or more

7. In what state do you currently practice?

8. Are you familiar with any alternative pain control methods such as guided imagery, deep breathing, muscle relaxation, hypnosis, acupressure, essential oil diffusion, audio distraction, and/or visual stimuli?
   - Yes
   - No

9. (Answer only if no given #8) Would you be interested in becoming familiar with these techniques and their implementation into the dental practice setting?
   - Yes
   - No (End of survey)

10. Which of the following alternative pain control methods are you familiar with?
    - Guided imagery
    - Deep breathing
    - Muscle relaxation
    - Hypnosis
    - Acupressure
    - Essential oil diffusion
    - Audio distraction
    - Visual stimuli
    - Other ____________________

11. Are alternative pain control methods incorporated in your present dental office?
    - Yes
    - No
12. (If answers “no” #11) Do you believe incorporating alternative pain control methods in your present dental office would be beneficial for both patients and team members?
   - Yes
   - No              (End of survey)

13. Who performs these alternative pain control methods in your present dental office?
   - You
   - Other dental hygienist
   - Dentist
   - Dental assistant

14. Which of the following alternative pain control methods do you use in your present dental office?
   - Guided imagery
   - Deep breathing
   - Muscle relaxation
   - Hypnosis
   - Acupressure
   - Essential oil diffusion
   - Audio distraction
   - Visual stimuli
   - Other___________________

15. Where did you learn these alternative pain control methods?
   - Dental hygiene school
   - Personal experience
   - Ce course
   - Someone in the office
   - Other___________________
16. Based on your practice, how beneficial are alternative pain control methods to you and the average patient?

- Not beneficial
- Slightly beneficial
- Moderately beneficial
- Highly beneficial
- Extremely beneficial

17. If you personally perform alternative pain control methods, how long have you incorporated these into the private practice setting?

- 0-3 years
- 4-6 years
- 7-9 years
- Greater than 10 years
APPENDIX B

INFORMED CONSENT DOCUMENT

Project Title: The Implementation of Alternative Pain Control Methods by Dental Hygienists
Investigator: Alejandra Valadez Rodriguez, Department of Allied Health, 615-275-7058

You are being asked to participate in a project conducted through Western Kentucky University Program of Dental Hygiene. A basic explanation of the project is written below. Please read this explanation and discuss with the researcher any questions you may have via email to: alejandra.valadez-rodriguez226@topper.wku.edu.

If you then decide to participate in the project, you should keep a copy of this form for your records.

1. **Nature and Purpose of the Project:** Dental hygienists can encounter patients with anxiety during treatment on a daily basis. Dental anxiety is a common obstacle encountered during patient treatment that can lead to difficulty in completing treatment in a timely manner and alter patient compliance. Alternative pain control methods can assist in alleviating patient anxiety providing a more efficient and relaxed clinical atmosphere for both patient and clinician. As a dental hygienist, it is important to understand new concepts and techniques that can contribute to a more comfortable setting for patients who experience dental anxiety. As new trends develop within the dental field, it is important to educate dental hygienists about these alternative methods to assist in producing a relaxed environment for patient treatment.

2. **Explanation of Procedures:** Each dental hygienist will receive an email with a link to answer a questionnaire pertaining to the awareness and/or use associated with alternative pain control methods. A survey is being conducted through the use of WKU Qualtrics survey software. Upon data collection, results will be analyzed to determine awareness and implementation of these methods within the dental hygiene community.

3. **Discomfort and Risks:** No associated discomfort or risks.

4. **Benefits:** Information collected from this survey would include a general awareness about the procedure and offer insight regarding its use within the private practice setting. By conducting this survey, we are able to decipher the level of knowledge pertaining to this treatment modality. Perceiving these trends enables dental professionals to provide a higher standard of patient care.

5. **Confidentiality:** All data will be maintained within the WKU Program of Dental Hygiene and only found on an office computer. All participants will be protected using Qualtrics software through WKU with a personal identification number keeping the response confidential.

6. **Refusal/Withdrawal:** Refusal to participate in this study will have no effect on any future services you may be entitled to from the University. Anyone who agrees to participate in this study is free to withdraw from the study at any time with no penalty.

*You understand also that it is not possible to identify all potential risks in an experimental procedure, and you believe that reasonable safeguards have been taken to minimize both the known and potential but unknown risks.*

*Your continued cooperation with the following research implies your consent.*

THE DATED APPROVAL ON THIS CONSENT FORM INDICATES THAT
THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY
THE WESTERN KENTUCKY UNIVERSITY INSTITUTIONAL REVIEW BOARD

Paul Mooney, Human Protections Administrator
TELEPHONE: (270) 745-2129

[Institutional Review Board approval stamp]

WKU IRB# 16-268
Approval - 1/21/2016
End Date - 5/10/2016
Expedited
Original - 1/21/2016