Research Proposal Guide

The research proposal should include the following sections:

**Introduction**
- State the research problem.
- Explain how proposed study is found in the research literature. Use your annotated bibliography to assist with this process.
- Suggest potential contribution to research knowledge and potentially dental hygiene practice.
- State the question(s), objective(s), purpose or research hypothesis that the research proposes to address. The sample population should be included in the statement.

Sell the reader on the idea that the research is worth doing.

Example hypothesis: Migrant worker children in Georgia have a higher incidence of dental decay than children who reside in Georgia. According to Thomas (2012), children with a higher incidence of dental decay have parents who use tobacco (Thomas, 2012). **BE SURE TO CITE YOUR SOURCES**

Example question: Do migrant worker parents have sufficient knowledge in the resources available for tobacco cessation?

**Literature Review**
- How is the study relevant? This section does not include the entire literature review. Cite paragraphs that are most relevant to the research problem.
- Literature review identifies the rationale for the study. What conclusions were made from the review of the literature?

**Research Method**
- Describe sampling procedures, data-collection procedures and any other procedures critical to the study. Are any objects being used by the participants?
- Identify the instrument used (test, questionnaire, interview, petri dish)
- Is there a time factor involved? (number of minutes expected to complete the process, schedule of activities, length of time of study, etc.)

**Agreement to Participate**
- Assure confidentiality of information gathered. Results will be anonymous.
- Where will information gained by research be used?
- Is a confidentiality and consent form needed for the research? If so attach as a separate Word document to research proposal.

**Questionnaire (experimental groups will NOT include this section)**
- The questionnaire or survey must be attached to the proposal as a separate Word document.
- Questionnaire is going to assist in finding the results of the study.
- Use the Internet to find examples.
- Keep it short and simple. Do not use complex terms or instructions. How knowledgeable will the participants be about the topic?
- Include brief instructions.
- Make it attractive and easy to read.
- Number the items.
- Organize it logically.
- Will open-ended questions or agree or disagree questions be used? What types of surveys were found in the review of the literature?
- Start with the more simple questions. Difficulty should increase by the end of the survey.
- State the questions positively.
- Ask only one question at a time. Two questions in one item are very difficult to analyze.
- Ask someone who could be a participant review the survey and ask them if any of the questions were confusing.

See below for examples... **ALL groups must submit the last document**
Power vs. Manual Toothbrushes on Plaque Removal: A Two Week Experiment

Ashley Barlow, Kayla Coleman, & Felicia Green

West Georgia Technical College
Introduction

Questions regarding the difference in manual and electronic toothbrushes have become more frequent due to the increase in toothbrush options and brands on the market. The most important deciding factor is which one will provide the most efficiency when it comes to overall oral health and plaque control. Recent studies have been beneficial in providing information to the consumers about the many benefits of electronic toothbrushes. The question is does the electronic toothbrush really provide better results on plaque control than a manual toothbrush? Some studies express no difference in power and manual toothbrushes on plaque control and conclude that the effectiveness is in the technique (Sonnenberg, 2015). With the understanding that every patient’s needs are different, knowing the benefit of both types of toothbrushes as well as which provides more efficacy will aid dental professionals when educating the patient on oral health at home. The purpose of this research is to determine which toothbrush is more effective on the student researchers.

Literature Review

There are conflicting reports on whether or not there is a difference in electronic and manual toothbrushes. The outcome of one experiment on plaque removal showed a substantial decline in plaque in the gingival margin, buccal surfaces, and interproximal regions when using an electronic style brush (Auxiliary, 2013). The Clinical Practice of the Dental Hygienist and Mosby’s textbooks both name the rotating-oscillation type as the superior power toothbrush. Another study indicated that a manual toothbrush is just as effective when using a manual toothbrush with the proper technique at a 45-degree angle (Sonnenberg, 2015). Trials held from
2002 to 2005 compared manual and electronic toothbrushes and gave a conclusion of no evidence of a significant difference in plaque index (Vibhute, 2012). However, through information attained from randomized studies and extensive surveys, it was concluded that the plaque index and gingival bleeding scoring methods were decreased by the use of high frequency power toothbrushes in patients with orthodontic appliances and periodontal implants (Costa, 2007). Inconsistent conclusions permit a valid reason to research further to find a credible answer to the question of which is more effective.

**Research Method**

The research method for this study is experimental. The study will include a toothbrush efficiency trial starting with an initial plaque index on the three dental hygiene student researchers. OHI/PII is the plaque index scoring method we will use. After the initial index, one researcher will use a manual soft bristle toothbrush only in the morning and at night, the second researcher will use a multi-mode Power Toothbrush that has various capabilities with a multi surface cleaning brush head in the morning and at night, and the third researcher will use a combination method to include the manual soft bristle in the morning and the multi-mode Power Toothbrush that has various capabilities with a multi surface cleaning brush head at night. All three researchers will use the same type of toothpaste. This brushing experiment will be completed over a 2-week period with a plaque index score documented with pictures at the beginning, the end of the first week and then at the end of the experiment. At the conclusion of the trial our hopes are to be able to identify which toothbrush is more effective on plaque removal.
Agreement to Participate

Since the three researchers will serve as the test sample, participation agreement is assumed.
Ergonomic Design: A Survey of Methods Used in Dental Offices to Reduce Incidence of Musculoskeletal Disorders in Dental Hygienists.

Marcelle Garlick, Denise Landon, and Katie Waldrup

West Georgia Technical College
ERGONOMIC DESIGN

Introduction

Dental hygienists are at high risk of developing musculoskeletal disorders (MSDs). Long hours performing repetitive tasks, awkward positions, pinch grasp, minimal break time, and lack of stretching are the main aggravators for neck, back, and hand pain. Although most dental hygienists are aware of the occupational risks for MSDs, they may not be properly trained to recognize ergonomic hazards (Sanders, 2002). Also, they may not have ergonomic options available, such as instruments, chairs, loupes, and coaxial illumination. Current research describes ergonomic features to prevent or reduce MSDs (Simmer-Beck, 2008). Complementary alternatives are also suggested to aid in prevention (Chismark, 2011). Awareness of ergonomics is insufficient without proper application. Due to continued high incidence of MSDs among dental hygienists, it is expected that the ergonomic options available are not being utilized. The purpose of this study is to explore what ergonomic designs are available and whether or not they are being used in dental settings in the Atlanta metropolitan area.

Literature Review

According to Taber's cyclopedic medical dictionary, ergonomics is defined as “The science which is concerned with the problem of how to fit a job to a person’s anatomical, physiological, and psychological characteristics in such a way as to enhance human efficiency and well being”. Difficulty in performing daily tasks in the office or at home, medical expenses, and increase in workers compensation claims are associated with musculoskeletal pain (Simmer-Beck, 2010). Studies have shown that dental hygienists are reducing their workload or changing
ERGONOMIC DESIGN

fields due to acquired pain in their hands, neck, and back (Osuna, 2006). This study is relevant because career satisfaction is directly dependent on the appropriate application of ergonomics.

Selecting the proper loupes can be beneficial in preventing neck pain. The ideal position for neutral neck posture is less than twenty degrees of forward tilt. The four categories that may be used when choosing loupes are the working distance, angle of declination, depth of field, and size and weight of the frame. Each aspect should be personalized among clinicians to better serve them. Improperly fitted loupes or misuse of magnification system can be detrimental rather than beneficial (Nield-Gehrig, 2013).

Ergonomically designed chairs are also beneficial to career satisfaction. The clinician chair should be slightly tilted so the hips are higher than the knees (Nield-Gehrig, 2013). A saddle chair is an example of ergonomic equipment that aligns the pelvis in a neutral position and reduces pressure in the lower back (Valachi, 2012). This chair has no backrest making it convenient to transport between offices.

Handle diameter, instrument weight, and texture are features of instruments. Functional design for instrument diameter should be 10mm or higher. Less than 10mm would require more forceful pinch-grasp and may lead to muscle fatigue. The optimal weight of an ergonomic instrument should not be over 15 grams. The texture is an important feature for better control of the instrument in the wet environment of the oral cavity as well reducing pinch grasp due to increasing friction between the fingers and handle (Nield-Gehrig, 2013). Working with a variety of instruments with different characteristics is ideal because this varies the muscles groups used during the dental procedure (Simmer-Beck, 2010). Manufactures provide a wide range of
instrument designs, however it is important to note that there is no agency regulation for size or shape of dental instruments (Osuna, 2006).

Along with ergonomically designed instruments and equipment, acupuncture, massage therapy, frequent stretch breaks, and yoga can be incorporated to reduce or prevent musculoskeletal pain. Dental hygienists that use complementary and alternative medicine (CAM) as a method of prevention are more likely to experience career satisfaction and longevity (Chismark, 2011).

**Research Method**

The research method for this study is to conduct a questionnaire to be answered by dental hygienists in the Metro Atlanta area. This study will be using a convenience sample in which the dental offices will be selected from the internet or yellow pages based on their proximity to Newnan, GA. The dental offices selected will be located within a fifty mile radius of Newnan. The questionnaires will be delivered in person. A self-addressed envelope will be included for the convenient return of the survey. If specifically requested, the survey will be attached to an electronic mail to be sent to the dental offices. Surveys will be sent to approximately forty dental offices in hope of receiving at least twenty-five completed surveys. Completion of the questionnaire should not take more than five to ten minutes. Within three to five days we will call the offices to check if the surveys have been completed and returned. If they have not, we will remind them and again request completion.

**Agreement to Participate**
The questionnaire is mainly concerned with information provided about items that allow the dental hygienist to maintain ergonomic positions, such as the design of the clinician's chair, proper patient positioning, and loupes. The data received from the survey will be used to analyze and assess whether or not dental hygienists are using ergonomic methods on a regular basis. A consent form will be included for the participant assuring confidentiality and anonymity. Completion of this survey indicates the consent of the clinician.
Dental Hygiene Research Project

Dear Participant,

You are invited to participate in a research project to study methods used in dental hygiene to reduce musculoskeletal disorders. This study will assist in completing course requirements for the Dental Hygiene program. The attached survey will ask a variety of questions about ergonomics. It should take you about 5 to 10 minutes to complete the survey. We will make a follow up phone call too you within 3 to 5 days as a reminder and to check the status of the survey. Through your participation, we hope to understand the ergonomic methods and devices commonly used in the dental office that affect the health and career satisfactions of dental hygienists.

There are no risks to you if you decide to participate in this survey, and we guarantee that your responses will be anonymous and confidential. Your participation is voluntary. Your consent to participate in this research project is acknowledged in your completion of the survey.

If you have any questions or concerns about completing the questionnaire or about being in this study, you may contact Dental Hygiene Program Director, Dr. Naquila Thomas, RDH, Ed.D at 770.947.7220 or naquilla.Thomas@westgate.edu.

Thank you for your time.
Questionnaire

1. What is your age? ______________

2. How long have you been working as a dental hygienist? Years ________

3. Do you choose your own instruments? Yes / No
   If yes, what characteristics do you look for?
   Please check all that apply. (Example: Diameter_More than 10mm; Weight_More than 15g).
   □ Diameter ______________ □ Texture ______________
   □ Weight ______________ □ Other ______________
   If not, are you comfortable and satisfied with the instruments your office provides you?
   Yes / No

4. Do you use a variety of shapes/sizes of instruments? Yes / No

5. Do you wear loupes on a regular basis? Yes / No

6. Do you use coaxial illumination (head light)? Yes / No

7. Is ergonomic positioning a priority for you? Yes / No
   Please check all that apply.
   □ Neutral wrist □ Shoulders down
   □ Sitting straight □ Neck not overly bent
8. What type of chair do you use?

☐ Standard/right angle chair  ☐ Saddle chair

☐ Ball chair  ☐ Other ______________________

9. Did you have any musculoskeletal pain prior to beginning practice as a dental hygienist?

Yes / No

a. If yes, please explain location and severity of your pain:

__________________________

b. Do you think that working as a dental hygienist increased your pain? Yes / No

10. Do you have any current musculoskeletal pain that you believe was caused by your work as a dental hygienist? Yes / No

Please check all that apply and level of pain from 1-10. (0 is no pain – 10 is most severe)

☐ Neck ________________  ☐ Wrist ________________

☐ Shoulder _______________  ☐ Hand _______________

☐ Back ________________  ☐ Other _______________

11. Were you taught ergonomics in dental hygiene school? Yes / No
12. Have you ever attended a continuing education course on ergonomics? Yes / No

13. Do you participate in any of the following?

☐ Yoga  ☐ Massage therapy
☐ Chiropractic Care  ☐ Acupuncture
☐ Regular exercise  ☐ Other ______________________

☐ Intentional stretching at work

How many times per week? ______________________

14. Please include any comments you may have:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
References


Each research group will need to submit this signed document to Dr. Thomas at the time the research proposal is submitted!!

WGTC Dental Hygiene Program’s Research Participation Agreement

STUDENT USE ONLY

In consideration of my participation in dental hygiene research, I agree to abide by the following requirements and accept responsibility as it pertains to:

1. Individually developed research protocol
   a. Established by each individual group

2. My group has agreed to conduct experimental or survey research
   (Circle one)

I am aware of the inherent risks and dangers associated with conducting research. I agree to accept these risks and dangers. Further, I agree to release, hold harmless and indemnify West Ga Technical College, its employees, agents, and officers for any claims, losses, and costs incurred or arising out of my Participation in research.

I am 18 years or older:

_________________________________________ Date: _______________________
Signature of Research Participant

_________________________________________ Date: _______________________
Signature of Research Participant

_________________________________________ Date: _______________________
Signature of Research Participant