Action Research Project:

Behavior Change and Compliance Using Dry Brushing, Motivational Interviewing, and Appreciative Inquiry

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Abstract

Introduction: This action research project is about a registered dental hygienist's (RDH) struggle to continue lecturing her patients with the hope of behavior change to improve their oral-systemic health. She questions whether there is a better way to promote oral and systemic health, increase receptiveness/participation from the patient, and improve daily oral care compliance other than the traditional dental hygiene approach of lecturing that she was taught in school.

Methodology: Five patients were randomly chosen. The communication styles of motivational interviewing (MI) and appreciative inquiry (AI) were used to introduce dry brushing as a way to reduce deposit formation in the patient's specific area of concern. Follow-up was done 7–14 days later.

Results: Based on the follow-up with all patients, the RDH noticed a significant difference between the use of MI and AI versus the traditional approach of see, tell, and lecture. Patients were relaxed, receptive, and motivated to change behavior and be compliant. In addition, the majority of participants were extremely satisfied with the results of dry brushing and will continue this technique with daily compliance.

Conclusion: The RDH will continue to use MI and AI in her communication approach and recommend dry brushing when appropriate due to the positive experience and feedback received from her patients. She stresses the importance of self-awareness in one's practice, of making changes if needed, and of being open to trying new and/or alternative approaches.

Introduction

Action Research Question:

If I change my oral health promotion approach to include both motivational interviewing and appreciative inquiry and introduce dry brushing to help reduce deposit formation, will this lead to behavior change and compliance among my patients?

Clinical dental hygiene can be an extremely rewarding but at the same time frustrating career. I consider myself a health promoter; I want the best for my patients, and I want to see them healthy. So when I see a patient and their oral and systemic health has improved or has been maintained—I celebrate! Or when I see patients who are compliant with their oral care routine and value the education and instruction I have given them—I feel like I am making a difference and improving lives! Then there is the other side of clinical hygiene: no matter how much I try to help and bend over backwards, there is still that bunch (the majority it seems like) whose oral hygiene is poor. They lack daily home-care compliance; their dental disease is progressing, and their health is deteriorating. It appears as though they do not value me as a clinician or themselves—it is heartbreaking, exhausting, and frustrating.

In the past, I would justify the noncompliant group's behavior as being lazy and not caring—I blamed them. There was no way I had anything to do with their resistance to behavior change and lack of compliance. I tried to do everything right, doing everything I was taught in dental hygiene school and following the rules laid out by the College of Dental Hygienists of British Columbia (CDHBC).

But if I was this superstar hygienist, then why was I not seeing more health and compliance among my patients? This is when I had to be honest with myself and take a real hard look at every aspect of my practice as a dental professional, including my values, technical skills, and communication skills, to determine why, what, and how I was doing things and explore how I could be a better clinician (McNiff & Whitehead, 2011).

I noticed that most times my patients were either defensive or not interested in oral hygiene education or instruction—it felt like a struggle. I have even tried a variety of approaches over the years: the lecturing approach, passive approach, and (as embarrassing as it may sound) begging approach to get through to my patients and, most times, achieved little success. This was how my action research topic was born, when I realized, through self-awareness and reflection, I had to change my oral health promotion approach and find a better way to communicate, educate, and motivate my patients to want to take better care of their oral health.

This action research topic is important to me because one of my values is to help people and improve lives. I am ready and willing to try something new. For my action research project, I have decided to try motivational interviewing and appreciative inquiry in my oral health promotion approach and introduce dry brushing to help my patients achieve greater oral health, behavioral change, and compliance.

Background Information

An overview of my action research project:

1) Randomly select 5 patients.
2) Motivational interviewing: Ask patients open-ended questions about their current oral hygiene routine and collect valuable information regarding their daily practice of oral care. What are they currently doing on a daily basis? What products are they currently using? Are they brushing, flossing, using mouthwash, and if so, how often?
3) Appreciative inquiry/positive feedback: Highlight any current good or positive habits and efforts on patients' part in improving their oral and systemic health.
4) Motivational interviewing: Ask patients if they have noticed any areas in their mouth where there tends be more soft and/or hard deposit formation?
5) Permission: Ask patients if they would be interested in learning a new brushing technique that will help address these "difficult" areas.
6) Dry brushing: Introduce dry brushing. Include reasons as to why it is effective and review technique.
7) Ask patients if they have any questions or concerns about dry brushing and address these concerns. My goal is to establish a strong clinician-patient relationship (build rapport) to be able to make other oral health recommendations in the future.
8) Followup in 7–14 days. Gain valuable information on patients' experiences with dry brushing. Address any questions and concerns.

For my action research project, I decided to focus on brushing, specifically dry brushing, because I feel effective brushing is the foundation of a good oral hygiene routine and is the first skill that should be mastered before adding other dental aids/products. The American Psychological Association recommends starting small and changing one behavior at a time in order to make a lifestyle change that will last. I will introduce dry brushing to my patients and ONLY dry brushing, otherwise progress can fail to happen, as the patient may struggle, feel overwhelmed, and give just up.

From my experience as a clinical registered dental hygienist, the most common area I see with higher levels of plaque and calculus formation is the lingual and interproximal surfaces of the lower mandibular teeth (S5). For my research paper, I have decided not to tell my patients where I notice deposit formation but rather ask my patients to identify the area(s) where they have noticed deposit formation either visually or with their tongue. By asking the patient where they see and feel the deposit(s), patient autonomy is achieved and the approach is patient-centered rather than clinician-centered and increases receptiveness from the patient to participate (Bray & Williams, 2014).

I anticipate a positive outcome in the implementation of motivational interviewing, appreciative inquiry, and dry brushing in helping my patients reduce plaque and calculus formation in their problem brushing areas and increase behavioral change and compliance. I feel the motivational interviewing will help me understand the patient's oral health routine—their strengths, weaknesses, values, and areas that matter most to them—while the appreciative inquiry will

allow me to highlight the patient's strengths, increase oral health self-esteem, and build rapport. I believe this will be a highly effective method and approach that will produce a positive effect on behavior change and compliance, not just for dry brushing but for any oral health recommendation that may be given in the future.

Plaque and Calculus

Most dental diseases, concerns, or issues patients have are mainly due to old or high amounts of plaque in their oral cavity. These include: halitosis, decay, gingivitis, periodontitis, tooth loss, calculus, and so on (Coventry, et al., 2000; Loesche, 1996). These are issues that can prevented or maintained with good oral hygiene.

Plaque is experienced as a fuzzy feeling on the teeth. Plaque is a soft, sticky biofilm that is composed of thousands of different types of bacteria (Saini, et al., 2011). It is a combination of bacteria and the food we eat on a daily basis. When plaque is not removed, it can be harmful to the teeth (decay), gums (gingivitis and periodontitis), and the body as a whole (Amar & Kim, 2006; Hirschfeld & Kawai, 2015). Due to its soft consistency, plaque can be easily removed via mechanical removal by a brush on brushing surfaces, interdental aids for interproximal and subgingival surfaces, and a tongue brush for the tongue.

Calculus, also known as tartar, is a solidified plaque, mainly composed of calcium phosphate mineral salts (White, 1997). Calculus is first plaque before it

makes contact with the minerals in the saliva and hardens. This process can take place in as little as 24 hours (O'Hehir, 2003). It can be found on any tooth surface, although the most common areas where calculus is found is the lingual surface of the mandibular anterior teeth (33–43) and the buccal surfaces of the maxillary molars (16–17; 26–27). This is mainly due to the close proximity of the salivary ducts to these teeth (White, 1997). When calculus is formed, it can no longer be mechanically removed with a brush or interdental aid, and in this case, needs to be removed by a trained dental professional (registered dental hygienist or dentist) via scaling and root planing. The best prevention of calculus formation is to mechanically remove it when it is still plaque and the deposit is soft—easily achieved with a good oral care routine.

* ISO Numbering System by the World Health Organization is used above.

Dry Brushing

Brushing is a simple process, yet most people still struggle with brushing thoroughly and removing plaque. According to O'Hehir and Suvan (1998), the most common issues for patients not brushing well enough are: not brushing long enough (2 minutes), not following an organized brushing pattern when brushing, and initially using toothpaste when brushing, which numbs the tongue and leaves the patient unable to tell whether their teeth are clean. Dry brushing is an effective brushing technique that has been proven to be thorough at removing plaque on the teeth, which results in less calculus formation and the prevention

of other dental problems (O'Hehir & Suvan, 1998).

Dry brushing involves taking a dry brush, manual or electric, with no water or toothpaste, and starting in the area of concern (whether it's a small section, such as the mandibular anterior teeth, or the entire dentition) and brushing until it feels and tastes clean with the tongue. Once the area feels and tastes clean, the patient is advised to brush like they normally would: that is, brush all the teeth with toothpaste (O'Hehir & Suvan, 1998).

The dry brushing technique is ingenious because the clinician recommends the patient start in their "problem area" so the patient is consciously aware of what, where, and how they are brushing, and the tongue is used as an indicator to check whether the area is smooth and clean (O'Hehir & Suvan, 1998). In addition to being effective, dry brushing is also easy and does not require the patient to spend money on an additional dental aid.

Motivational Interviewing and Appreciative Inquiry

Motivational Interviewing (MI) is the opposite of the traditional oral hygiene instruction—see, tell, and lecture—taught in hygiene school. MI is a communication style where the clinician and patient work together—it is interactive. It is a patient-centered approach, where the clinician obtains information by asking the patient open-ended, clarifying, and expanding questions and, most importantly, listening to what the patient has to say. MI is about getting to know patients: understanding their habits, their routines, and what is important to them. It also involves asking patients for permission to make

suggestions and discuss recommendations (OHI) appropriate to their values and goals. MI allows patients to feel respected and autonomous due to the non-aggressive approach (as opposed to what traditional oral hygiene instruction can feel like); patients retain more information since they are participating rather than just listening, and they are more likely to change since OHI has been customized towards their values and goals (Ramseier & Suvan, 2012).

Appreciative Inquiry (AI) simply is focusing on the positive rather than the negative. It is about acknowledging, praising, and taking the best qualities of an individual or organization and using them as leverage to grow, flourish, and improve. Rather than focusing on faults or what is going wrong and trying to fix it, AI is the opposite; it focuses on strengths and positive feedback to move forward (Hammond & Royal, 2001). AI involves being honest and genuine. As a dental hygienist, it is a way of focusing and being attentive to what patients are doing well and any efforts on their part to improve their oral health. No matter how little, it is important to acknowledge these victories to the patient, since most people like compliments, and these can be used as motivation to build on and increase patient self-esteem.

Methodology

- Randomly select 5 patients for the action research project.
- Obtain patient from reception area.
- Greet the patient with a smile; tell the patient it is nice to meet him or her (if new patient) or see him or her again (if the patient has been seen before).
- Seat patient in chair.

Assessment:

- Review medical history.
- Identify any acute or chronic dental concerns or issues the patient may have.
- If radiographs are needed, obtain verbal informed consent and proceed with radiographic exposure.
- Dental hygiene assessment:
    - Intraoral and extraoral examinations.
    - Update odontogram, if needed.
    - Probe and chart recession.
- Communicate treatment plan and obtain verbal informed consent to continue.
- Debridement: scaling and root planing.

Motivational Interviewing and Appreciative Inquiry:

- During treatment, ask, investigate, listen (MI), and encourage and praise (AI)
- Ask and investigate what the patient's home-care routine involves (motivational interviewing) by asking open-ended, clarifying, and expanding questions (Batchelor, 2009).
- Examples:

  Open-ended question:

  For a new patient: "Because this is our first time meeting, do you mind me asking about your daily home-care routine?"

  For an existing patient: "Has anything changed in your home-care routine since I last saw you x months ago?"

  Clarifying Question:

  "May I ask what type of brush you use? Electric or manual?"

  Expanding Question:

  "You mentioned you only brush once a day. Why is that?"

- Listen and gather data regarding the products the patient uses and his or her routine.
- While listening, nod and/or add encouraging words or phrases to show agreement with any good points the patient may have.
- Once the patient has completed describing his or her home-care routine, summarize what the patient has said and highlight any good areas noticed during the assessment (i.e. improvements in probing readings) as well as any good habits or improvements that the patient may have just shared.

Encourage my patient to keep up the good work in this particular area (appreciative inquiry).

- Highlight the positives rather than focusing on the negatives.
- Example: A patient is not flossing or using interdental aids, although the patient is a thorough brusher. Rather than focusing on not using interdental aids, focus on the good plaque control obtained by brushing.

  For example: “I noticed less plaque on the brushing surfaces today compared to your last visit, so as a result, there is less inflammation. I’m so glad to see this. Keep up the good work!”
- Now that appreciative inquiry and positive feedback have been implemented, the patient’s oral health self-esteem has increased and this is a good opportunity to continue motivational interviewing, leading up to introducing dry brushing. The motivational interviewing questions will be geared towards determining where the patient notices more plaque or calculus formation.
- Questions: “Are there any areas in your mouth you notice more plaque or tartar build up?” or “Are there any surfaces on the teeth that do not feel clean after brushing?”
- Once these target areas have been identified, ask the patient if he or she would be interested in learning a brushing technique that would help reduce buildup in these areas (permission to show dry brushing).
- Question: “Would you be interested in learning a brushing technique that will help reduce the buildup on x?” (i.e.mandibular anterior teeth).
- If the answer is yes, then proceed to explain dry brushing.

Dry Brushing:

- Review dry brushing instructions and technique.

Discuss How to Dry Brush:

1. Take a regular toothbrush (electric or manual) with nothing on it, no water or toothpaste, and start brushing the area of concern.
2. Continue to brush until the area tastes and feels clean with the tongue.
3. Once the area tastes and feels clean with the tongue, proceed to brush normally.

Discuss Why Dry Brushing Is Effective:

1. The problem area is brushed first so it is not missed.
2. Toothpaste bubbles do not get in the way, so visibility is not limited.
3. The tongue is used as an indicator to help determine whether the area is clean or not.

- Highlight that dry brushing:
    - Is simple, easy, and fast;
    - Is effective;
    - Requires no additional cost or dental aids.
- Ask the patient if he or she has any questions or concerns with dry brushing, and address these concerns.
- Ask the patient for permission to followup in a week or two (7–14 days) to see how they are doing with dry brushing and compliance. Ask how they would like to be contacted: phone, email, or text (permission to contact).
- Polish, fluoride, if needed.

- Dismiss the patient.

Follow-up:

- Introduce myself.
- State the purpose of the call and remind the patient of the follow-up.
- Ask follow-up/motivational interview questions:

    1. “What difference did you find with dry brushing vs. brushing withtoothpaste?”

    2. “Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?”

- Appreciative inquiry based on what the patient has told me.
- Tell the patient that I only want to provide techniques and recommendations that are effective, are efficient, and make a difference to my patients. Mention that their feedback will provide valuable information on whether I will continue to recommend dry brushing in the future.
- Thank the patient for his or her time and communicate that if the patient has any additional questions or concerns (now or later) about dry brushing or other oral health issues, that I would be more than happy to talk to them further.

Gathering, Interpreting, and Generating Evidence

Initially, my action research project was supposed to be done on 5 patients. Unfortunately, I was not able to followup with one of my patients after calling everyday for a week. I decided to move on and find another patient to replace her spot. I also included a bonus patient in my data and results. I introduced dry brushing to this patient approximately 2–3 months ago as a way to help her reduce the calculus and stain formation on her mandibular anterior teeth, an area that has always bothered her and has never felt clean. I decided to call her since I was curious to know if she was still dry brushing months later. I asked how she liked it, and if she had noticed a difference.

I contacted my patients for follow-up via phone a week to two weeks (7–14 days) after their dental hygiene appointment, with the exception of the bonus patient, who I contacted 2–3 months later. All my patients were extremely approachable and happy to hear from me. I asked two open-ended follow-up questions (motivational interviewing) and also included appreciative inquiry comments based on what they told me about their dry brushing experience. The feedback I got from all the patients I contacted, with the exception of one, was that they were motivated, were compliant, and had noticed a difference between dry brushing and their normal routine. Patient 5 struggled with dry brushing on a daily basis since she was accustomed to wetting her brush and using toothpaste; therefore, she was not confident about whether or not it made a difference. I ended the conversation thanking all patients for their time and stating that their feedback was valuable information to me as a dental hygienist, since I only

wanted to recommend products, services, and techniques that were effective, were efficient, and made a difference. They all told me to keep recommending dry brushing! I am extremely happy with the results!

Patient 1

Area of concern: plaque and calculus formation on the mandibular anterior teeth.

Follow-up: via phone 7 days after hygiene appointment.

Appreciative Inquiry: “You have good oral hygiene! Good job with the flossing! You are easy to work on!”

1. “What difference did you find with dry brushing vs. brushing withtoothpaste?”

- “I do notice a difference with dry brushing. I love dry brushing! I’m telling everyone—my husband and son!”

2. “Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?”

- “Yes, I’ll continue to dry brush!”

Patient 2

Area of concern: Lingual surface of Q1 and 4 molars do not feel clean after brushing.

Follow-up: via phone 7 days after hygiene appointment.

Appreciative Inquiry: “Good job with using an electric toothbrush! I notice less tartar today.”

1. “What difference did you find with dry brushing vs. brushing with toothpaste?”

- “Yes, It was easy and fast! I noticed my teeth feel so nice and clean, and dry brushing removes that residue on my teeth.”

2. “Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?”

- “Yes! You’re dedicated, and that's what makes you so good. You’re a lovely girl, and I just love ya!”

Patient 3

Area of concern:plaque and heavy calculus formation on the mandibular anterior teeth.

Follow-up: via phone 14 days after follow-up

Appreciative Inquiry: “Less tartar on the lower front teeth!”

1. What difference did you find with dry brushing vs. brushing with toothpaste?

- “Yes, I have noticed a difference. Not visually, but feeling my teeth with my tongue. You know, I was actually dry brushing before on and off, but now that I’m dry brushing on a regular basis, I notice a difference since I’m consistent.”

2. “Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?”

- “Yes, I will continue to do it. I switched to an electric brush after your

recommendation a few months ago but never liked it. I didn't go back to the manual toothbrush because it wasn't doing a good job, but now that I'm dry brushing, I have a new confidence in my manual toothbrush!"

Patient 4

Area of concern: plaque and calculus formation on the mandibular anterior teeth.

Follow-up: via phone 10 days after hygiene appointment.

Appreciative Inquiry: "Less deposit formation and a decrease in perio pockets in Q4 by 1mm."

1. "What difference did you find with dry brushing vs. brushing with toothpaste?"

- "Less buildup with dry brushing. I do notice a difference. It's easy, and having no toothpaste doesn't bother me because I can still taste the toothpaste from the night before. You're right, about toothpaste, It foams up and makes you just skim over the teeth."

2. "Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?"

- "Yes, I think I will. It will be interesting to see if there is less buildup at my next appointment, since I come every 3 months."

Patient 5

Area of concern:plaque and calculus formation on the mandibular anterior teeth.

Follow-up: via phone 10 days after hygiene appointment.

Appreciative Inquiry: “Good job with staying on top of your cleanings and coming in every 3 months. You did the right thing getting the grafting on the lower front teeth!”

1. “What difference did you find with dry brushing vs. brushing with toothpaste?

- “I think I have noticed a difference, but I have a habit of wetting the brush. I think it is a good recommendation. I just haven’t been all that consistent.”

2. Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?

- “Yes, I’ll continue to try it. I will keep two brushes, one that I always keep dry and a regular brush. I will let you know how I like it next time I see you.”

Bonus Patient

Area of concern: calculus and stain formation on the mandibular anterior teeth.

Follow-up: via phone 2–3 months after hygiene appointment.

Appreciative Inquiry: “You have great oral hygiene. Keep up the good work!”

1. “What difference did you find with dry brushing vs. brushing with toothpaste?”

- “Yes, it feels smoother with dry brushing. It’s very efficient. You know, a periodontist 35 years ago told me toothpaste was a waste and you do not need it at all!”

2. “Now that you have tried dry brushing, do you see yourself continuing to use this technique or going back to your old brushing habits?”

- “I’ll continue to dry brush. I’m interested to see if you see a difference at my next appointment. That’s what makes you so good—you care.”

Overview Chart of Data

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Bonus Patient
Area of Concern for the Patient	Plaque and calculus on S5	Plaque on lingual surfaces of Q1/4 molars	Heavy calculus on S5	Plaque and calculus on S5	Plaque and calculus on S5	Calculus and stain S5
Appreciative Inquiry Used	Good hygiene— You are easy to work on!	Great job with getting an electric toothbrush!	I've noticed less tartar on the lower anterior teeth today!	Less deposit formation and decrease in probing by 1mm in Q4!	Good job for coming in every 3 months! You did the right thing getting the grafting done on the lower anterior teeth.	You have great oral hygiene— Keep up the good work!
Follow-up method	Phone	Phone	Phone	Phone	Phone	Phone
Time frame between appointment and follow-up	7 Days	7 Days	14 days	10 days	10 days	2-3 months
Was the patient happy to hear from me?	YES	YES	YES	YES	YES	YES
Follow-up Question 1: Did you notice a difference between dry brushing and using toothpaste?	YES	YES	YES	YES	I think so.	YES
Follow-up Question 2: Will you continue to dry brush?	YES	YES	YES	YES	I think so.	YES

Main Findings/Results

I feel, after conducting my action research project, with motivational interviewing, appreciative inquiry, and dry brushing recommendations, that it led to success, behavior change, and compliance. This action research project was an enlightening and refreshing experience for me. I found motivational interviewing in conjunction with appreciative inquiry to be a more relaxed approach for both the patient and me. I felt less pressure because I did not feel like I was delivering bad news by lecturing my patient, and I felt the patient was more relaxed because they did not feel like they were being judged or given a hard time regarding their oral health. Motivational interviewing and asking open-ended questions allowed my patients to have a voice, and I did my best to listen. This in turn helped me learn more about my patients (i.e. their oral care routines, habits, struggles, and values) and customize my recommendations based what they told me. I enjoyed complimenting my patients and building them up. I also felt appreciative inquiry helped me establish rapport with my patients, and as a result, my patients were more open to what I had to say. Dry brushing was a success, with patients noticing a difference and expressing how they will continue to implement it into their daily routine. From now on, I will be implementing more of a motivational interviewing and appreciative inquiry approach in my communication, education, and instruction with patients; and dry brushing will be a staple recommendation to help patients reduce soft and hard deposit formation on brushing surfaces.

Business Aspect

If I am successful with the implementation of motivational interviewing and appreciative inquiry in achieving behavioral change in my dental practice, the following may happen:

1) I will see an increase in health and a decrease in dental and dental-related systemic diseases in my dental practice.
2) I will be considered a leading expert in the use of motivational interviewing and appreciative inquiry to achieve dental hygiene behavior change. I will write a book titled *Bye, Bye Dental Disease! Achieved Through Effective Communication* and will be asked to lecture worldwide.
3) Motivational interviewing and appreciative inquiry will be implemented in dental hygiene schools and curriculums to achieve behavior change and increase compliance among patients.

Conclusion/Reflection

The famous German physicist Albert Einstein defined insanity as, “Doing the same thing over and over again and expecting different results.” For years I communicated the **same** way to my patients by seeing, telling, and lecturing. I thought I was educating and helping them, and I expected them to change. Despite my good intentions, dental diseases were still rampant in my practice and were affecting too many lives. It was not until I decided to put my pride to the side, assess, reflect, and admit that I needed work and improvement that I began to really help my patients. I had to change myself first, before I could help

my patients.

This action research project made me think outside the box and try something new. I encourage and challenge my dental colleagues to do the same: do not be afraid to step out of the “norm” and their comfort zone. If something is not working in your practice, have an open mind to try an alternative approach or method. It may lead to a better outcome for everyone involved.

My goal as a clinician is to improve lives through oral health promotion. I am thankful for this experience, and I feel, after this project, I am doing a better job at it.

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