Keep My Teeth: A Peer led evaluation of dental professionals training in mouth care for people with intellectual developmental disorders

ABSTRACT

The study aimed to assess the effectiveness of Keep My Teeth, a modular training program developed by special care dentists to educate dental science professionals on providing oral care for individuals with intellectual developmental disorders (PwIDD). Employing a single-group pre-post-test pre-experimental design, the intervention was delivered through synchronous virtual or face-to-face presentations. Out of 48 respondents, 25 completed questionnaires. Initially, common barriers included access to care and practical challenges. However, post-training, there was a significant shift in perceptions of barriers. Participants reported increased confidence in providing oral care to PwIDD and expressed intentions to engage in various mouthcare behaviors. Overall, the intervention appeared to enhance participants' awareness of barriers, self-efficacy in oral care interventions, and promotion of oral care behaviors.

INTRODUCTION

Intellectual developmental disorder (IDD) is a umbrella term referring to individuals who experience significant cognitive impairments as a result of a developmental condition.[1] Often facing severe oral health issues, people with IDD (PwIDD) showcase a large health disparity.[2-4] In fact, evidence shows that PwIDD are twice as likely to become edentulous in old age than the general public.[5] These outcomes contradict the principles of the UNCRPD (United Nations Convention on the Rights of People with Disabilities), which aims to ensure equitable healthcare provision and prevent further disablement among individuals with disabilities. Addressing oral health issues among PwIDD is imperative to align with UNCRPD objectives.

When it comes to providing oral health care for PwIDD, caregivers play a substantial role.[7] This, however, cannot come easy as there are substantial barriers to care. Personal challenges can include difficulties PwIDD face when carrying out oral hygiene, as some suffer from atypical muscle tone, poor reflexes, poor tactile sensitivity, and most commonly swallowing impairements.[8-10] Additionally, caregivers may face emotional distress, compounded by communication and cognitive barriers in PwIDD, further complicating oral care provision.[8] Environmental barriers such as residential settings and access to support staff also influence mouthcare outcomes.[11]An effective way to surpass these barriers would be to improve the dental services for PwIDD by educating dental professionals in this field of care. By expanding the pool of dentists who can provide standardized care for PwIDD, this largely influences the access to oral healthcare for these individuals, such as allowing them the choice of private or public primary care.

The following study was largely student led, incorporating a peer to peer approach, aiming to deliver a pilot training programme in oral care to trainees within the dental science profession.

The programme, "Keep My Teeth," (See Figure 1) endeavors to tackle the aforementioned challenges by targeting third year dental students undergoing their medical training. The evaluation focuses on alterations in perceived obstacles, self-assurance, and intended actions. Furthermore, researchers aimed to determine whether supplementary practical training was perceived as advantageous by a subset of participants who received it.

Figure 1. Keep My Teeth

METHODS

Design

A pre-post evaluation of a didactic training intervention.

Population and sample

Third year dental science (N= 48) trainees attending Keep My Teeth training February 2022 in Trinity College Dublin.

Intervention

Described using to TiDiER criteria: Rationale: *Keep My Teeth* was delivered to increase motivation and capability of trainees in two oral hygiene behaviours: *mouthcare* and *mouthcare planning* for people with disabilities. Didactic training aimed to increase intrinsic motivation by (*a)* specifying the behaviours trainees can undertake to prevent oral disease and the evidence supporting these behaviours and (*b)* highlighting the importance of oral health with emphasis on health disparities. Psychological capability was targeted through demonstration of how to plan mouthcare and how to brush teeth using resources from www.brushmyteeth.ie. Mode of delivery: Microsoft PowerPoint presentations were developed for delivery of the didactic element over four short lessons (a single two hour session). Figure 2 gives an overview of the Keep My Teeth program.

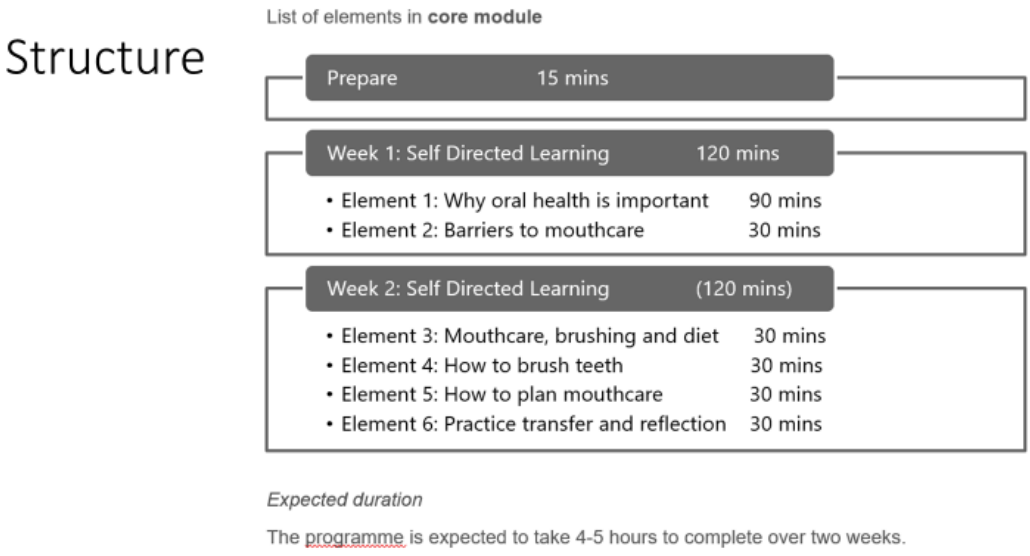

Figure 2. Keep My Teeth Overview

Data collection

Information regarding the study and a link to the pre-survey were sent to all participants prior to training. Participants were given the choice to opt in or out. A Qualtrics survey was sent to all students and was initiated before the didactic training. This same survey was repeated immediately after this training.

Data analysis

Responses were entered into SPSS v.22. Descriptive data were presented using central tendency and distribution or frequencies as indicated. Likert scales were dichotomised (Agree vs. Neutral/Disagree). McNemar *Chi square* test for paired nominal data was applied to pre/post data relating to perceived barriers to mouthcare, self-efficacy and intentions.

RESULTS

Participants

From didactic training, 25 out of the 48 dental students opted into the study: 60% of participants were female, with majority (64%) being between the ages of 20-25; 92% of the students had no previous experience with toothbrushing for a dependent adult.

Barriers to mouthcare

The most commonly reported barriers at baseline were access to care (88%) and practical difficulty (88%). Proportional change from baseline was found to be statistically significant for resistance to care, time pressure, competing priorities and demotivation. The barriers that displayed the greatest increase in awareness from pre to post training were time pressure (+144%; $p<0.001$) and competing priorities (+89.0%; $p< 0.01$).

Self efficacy and intentions

When it came to feeling confident in planning routine mouthcare for people with disabilities, a significant change was seen in reported confidence levels (pre: 41.7%; post: 96%). Similarly, when it came to the level of confidence in the delivery of mouthcare to people with disabilities, a 48% response change was seen (pre: 44%; post: 92%). Moreover, significant changes can be seen in response when asked about their intention on modifying oral hygiene advice they give to carers of people with disabilities. Pre-training 84% of the students demonstrated this intentions, while this rose to 100% post-training. Further responses can be found in Table 1.

DISCUSSION

The Keep My Teeth program led to enhanced self-efficacy and intentions among dental students regarding various oral hygiene-promoting behaviors, including planning, delivering, modifying, and advising on mouthcare. This improvement was observed amongst the young dental professionals, indicating the feasibility of this program. Initially, access to care and practical difficulty were the most commonly perceived barriers among participants. However, following training, resistance to care also emerged as a significant barrier. The most notable increase in perceived barriers post-training related to time pressure and competing priorities. The Keep My Teeth training effectively boosted participants' self-efficacy and intentions regarding oral care interventions for individuals with disabilities. While similar research has shown modest improvements in self-efficacy and reported behavior, direct comparisons are limited due to differences in measurement methods.

Implications:

The findings presented here are poised to enrich the existing body of knowledge concerning educational approaches for oral care interventions, aiming to equip dentists with enhanced skills to deliver more effective oral care to individuals with IDD. Drawing from these findings, the research team intends to enhance the role of students as partners in developing further iterations of the Keep My Teeth program. Future iterations may need to balance technical language to suit dental professionals while remaining accessible to others and adopt inclusive formatting to benefit individuals with disabilities without compromising usability for dental professionals.

Conclusion:

The Keep My Teeth program significantly boosted dental students' self-efficacy and intention toward various oral hygiene practices and altered their perceptions of barriers to care.

Designing a unified, customizable training program for dental students and other healthcare professionals appears to be a practical approach for enhancing self-efficacy, intentions, and awareness of barriers to oral care among individuals with disabilities. The effectiveness of online delivery for didactic training suggests its suitability for this purpose, while the value of additional practical training warrants further assessment, particularly regarding cost-effectiveness.

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Table 1. Self-efficacy and intentions

	DS (n=25)				
	Pre		**Post**		
	n	**%**	**n**	**%**	
I feel confident to plan routine mouthcare for people with disabilities					
Disagree/Neutral	14	58.3	1	4.00	***
Agree	10	41.7	24	96.0	
I intend to plan routine mouthcare for people with disabilities					
Disagree/Neutral	4	16.0	1	4.00	
Agree	21	84.0	24	96.0	
I feel confident to deliver routine mouthcare for people with disabilities					
Disagree/Neutral	14	56.0	2	8.00	***
Agree	11	44.0	23	92.0	
I intend to deliver routine mouthcare for people with disabilities					
Disagree/Neutral	4	16.0	1	4.00	
Agree	21	84.0	24	96.0	
I feel confident to demonstrate routine mouthcare for people with disabilities					
Disagree/Neutral	11	44.0	1	4.00	***
Agree	14	56.0	24	96.0	
I intend to demonstrate routine mouthcare for people with disabilities					
Disagree/Neutral	4	16.0	0	0.00	*
Agree	21	84.0	25	100.0	
I feel confident modifying the oral hygiene advice I give to carers of people with disabilities					
Disagree/Neutral	13	52.0	0	0.00	***
Agree	12	48.0	25	100.0	
I intend to modify the oral hygiene advice I give to carers of people with disabilities					
Disagree/Neutral	4	16.0	0	0.00	*
Agree	21	84.0	25	100.0	

I feel confident directing others to resources about routine mouthcare for people with disabilities					
Disagree/Neutral	13	56.5	1	4.00	***
Agree	10	43.5	24	96.0	
I intend to direct others to resources about routine mouthcare for people with disabilities					
Disagree/Neutral	2	8.00	0	0.00	
Agree	23	92.0	25	100.0	
I need more training in mouthcare for people with disabilities to do my job well					
Disagree/Neutral	1	4.0	3	12.0	
Agree	24	96.0	22	88.0	

** p<0.05 ** p<0.01 *** p<0.001: McNemar's test.*