

Use of a Mobile Application as an Auxiliary Aid for Oral Hygiene in Dental Students

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Abstract

Objective : To evaluate the efficacy of Brush DJ oral health mobile application as an auxiliary aid to oral hygiene practices among first year dental students.

Materials and methods: A double arm interventional study was undertaken among 1st year undergraduate dental students . 62 students participated in the study and were randomly allocated into group 1 and group 2. Group 1 received oral hygiene instructions, delivered verbally with the help of models and videos whereas group 2 was additionally introduced to Brush DJ mobile app.

Oral hygiene index & Bleeding index were recorded at baseline and 1month. A questionnaire regarding their knowledge on oral hygiene practices and efficacy of the verbal instructions/ mobile application was administered online through google drive by sending link to their registered E-mail. Statistical data were analysed using the SPSS software with a significance of $P < 0.05$.

Results: Analysis of OHI-S and Bleeding index showed a significant reduction among both the group, however, when compared between the group showed no statistical significant difference. The questionnaire survey revealed that Brush DJ mobile app motivated the participants 100% and 96.8% participants felt their teeth cleaner after using mobile app.

Conclusion: Brush DJ can be used as an auxiliary aid for oral hygiene maintenance. It is a viable option to take the oral health services to the doorsteps of the underserved population.

Keywords: Oral Health, Brush DJ, Auxiliary aid

Introduction

Oral hygiene is the practice of keeping the mouth and teeth clean to prevent dental problems. Various studies were done all over India which evaluated various factors such as age, gender, socioeconomic status, educational status, and attitude towards dental treatment. It all indicated that prevention of oral diseases must be aimed, by motivating the public in maintaining oral health as a part of general health and personal grooming. Periodontal disease affects adolescents and young adults in varying degrees worldwide. Therefore, oral health serves as a window to your overall health. ⁽¹⁻⁴⁾

The attitude of people towards their own teeth and towards dentists determines the oral health condition of a population. Due to the dental curriculum, dental students will be more aware regarding the importance of maintenance of oral

hygiene. So with proper training and motivation, dental students become a role model for the population. ⁽⁵⁾ However, they have little knowledge about oral hygiene practices as a fresh dental student, which is comparable to the non-dentist population. ⁽⁶⁾ The dental students are expected to be well conversant with issues of health and disease. So, it is important that the health professional must be well motivated and knowledgeable to impart appropriate attitudes in their community.

In the current electronic era of mobile health apps, which help people to manage their own health and wellness, when and where they need it. The Brush DJ oral health app is an award winning, free mobile application which is easily available to anyone with a smart device. This mobile app offer to motivate an evidence-based oral hygiene routine. ⁽⁷⁾ Hence, this study objective was to evaluate the efficacy of

Brush DJ oral health mobile application as an auxiliary aid to oral hygiene practices among first year dental students who will be the future oral care providers of the country.

Materials And Methods

A double arm interventional study was undertaken among 1st year undergraduate students of J.S.S. Dental College and Hospital. A total of 62 students participated were included in this study and they were randomly allocated into group 1 or group 2 i.e. 31 students in each group. Group 1 received oral hygiene instructions, delivered verbally with the help of models and videos whereas group 2 was additionally introduced to Brush DJ mobile app which plays music from their own playlist for 2 minutes which is optimum for brushing teeth, sets reminder to brush twice a day, floss interdental everyday, use of mouthwashes and dental appointments. There are short animated videos showing how to carry basic oral hygiene tasks such as flossing, using an interdental brush and a manual toothbrush.

The latest evidence-based age specific information is given from the Public Health England toolkit 'Delivering Better Oral Health'. OHI-S & Bleeding index were recorded in all participants at baseline and after 1 month. A questionnaire regarding their knowledge on oral hygiene practices and efficacy of the verbal instructions/mobile application was administered online through google forms by sending link to their registered E-mail at baseline & after 1 month respectively. Oral hygiene prophylaxis was done after the completion of the study. Statistical data were analysed using the SPSS software version 22 with a significance of $P < 0.05$. Before conduct of the study, ethical approval was taken from the Institutional Ethical Committee of JSS Academy of Higher Education & Research, Mysuru, India.

Statistical Analysis

The changes in intra oral findings and oral hygiene practices were evaluated in both the groups at baseline and 1 month. All the data was tabulated into M. S Excel Spreadsheet and analysed using Statistical Package for Social Science software (SPSS, Version 22).

Mean percentage and standard deviation was calculated. Paired student 't' test was used to evaluate the difference between OHI-S and BI for both groups at baseline and 1 month. One-way ANOVA was used to compare the differences between OHI-S and BI for baseline and 1 month in each group separately..

Results

A total of 124 questionnaires were filled by 62 participants at baseline and 1 month. The questionnaire survey revealed that Brush DJ mobile app motivated the participants 100% and 96.8% participants felt their teeth cleaner after using mobile app. (Table 1 and 2, Graphs 1 and 2) Analysis of mean Oral hygiene index (OHI) (Graph 3) and Bleeding index (Graph 4) showed a significant reduction among both the group, however, when compared between the group showed no statistical significant difference.

Discussion

The objective of this investigation was to assess user perception of an oral health app as an auxiliary aid to oral hygiene practices. *Majority of the participants had a fair knowledge about the oral hygiene practices before the conduct of the study but many did not imply it on a regular basis.* 43.5% and 83.85% participants responded that they brush twice daily at baseline and after 1 month respectively. It is promising that 96.8% user reported their teeth felt cleaner since using the app.

A study conducted in the US found that the average length of time people spend brushing their teeth was 46 seconds⁸ and research has shown brushing for two minutes removes 26% more plaque than brushing for 45 seconds.⁹ This increased length of brushing and the use of music appears to motivate this extended brushing time. Improvements in oral hygiene routine arising from use of the Brush DJ app are maintained, leading to longer term oral health improvements. Studies have shown that listening to music while performing sports had motivated and increased the lengths of activity by reducing fatigue and making the experience more pleasurable.¹⁰ 100% of the participants reported that they would

recommend this app to their family, friends and patients in future.

Conclusion

The mobile dental app further motivated and made it more practical to advocate oral hygiene practice and could be used as a promising tool to motivate an evidence based oral hygiene routine.

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Table 1: Descriptive Statistics

	group	Mean	Std. Deviation	N
ohi_pre	Group I	1.9165	.82949	31
	Group II	1.9952	.82763	31
	Total	1.9558	.82270	62
ohi_post	Group I	.9271	.68259	31
	Group II	.9968	.57677	31
	Total	.9619	.62768	62

Graph 1

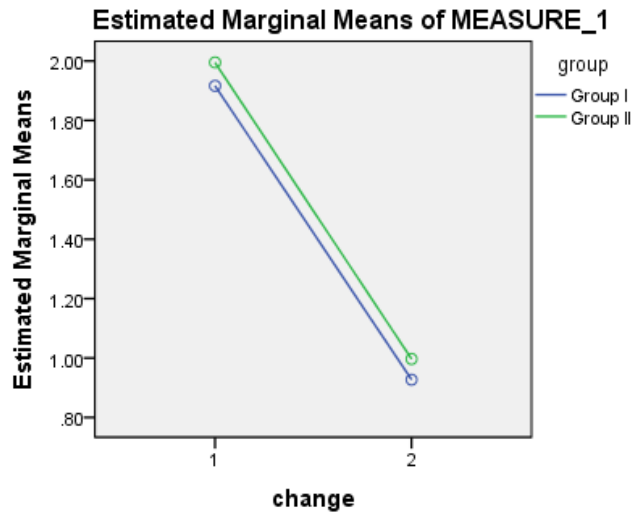
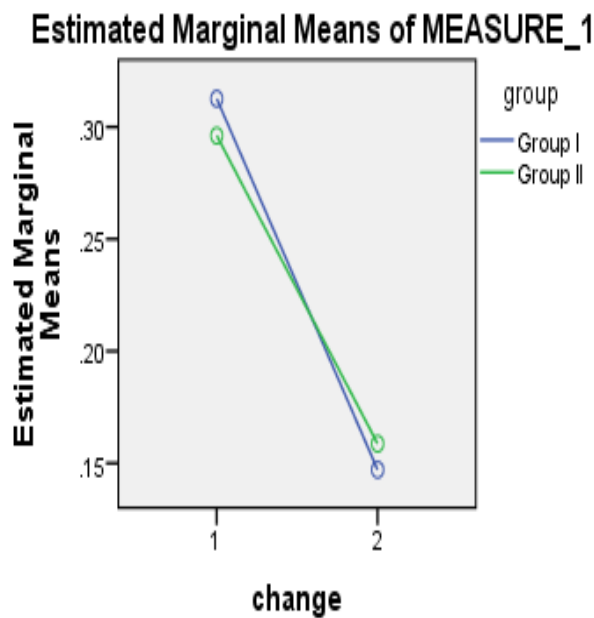
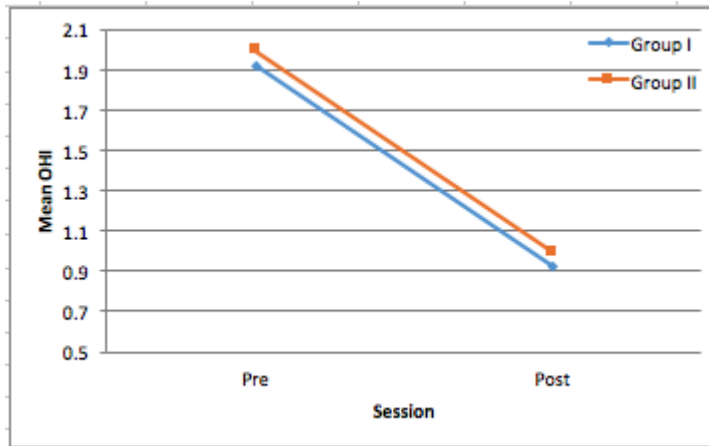


Table 2: Descriptive Statistics

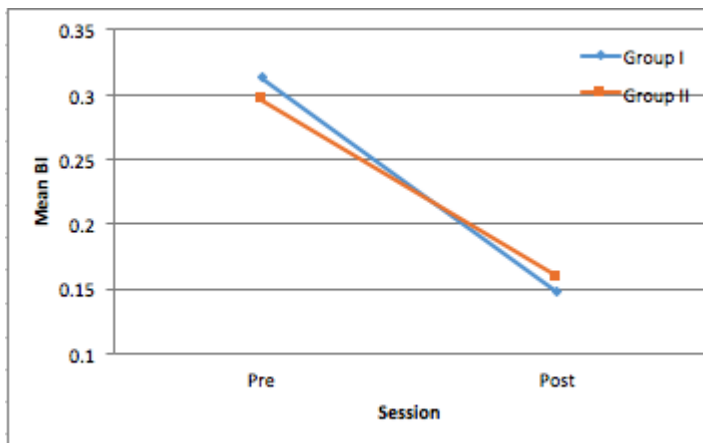
	group	Mean	Std. Deviation	N
bi_pre	Group I	.3126	.23706	31
	Group II	.2961	.21421	31
	Total	.3044	.22422	62
bi_post	Group I	.1471	.11714	31
	Group II	.1587	.12241	31
	Total	.1529	.11896	62



Graph 2



Graph 3: Mean OHI



Graph 4: Mean Bleeding Index