

Use of an oral hygiene education handout in Braille for the visually impaired

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1 | PROBLEM

Once a comprehensive diagnosis of the patients is made, Oral Hygiene Instruction (OHI) is the first clinical action to be implemented by dental students, due to its fundamental role in both the prevention and treatment of oral pathologies associated with biofilm.¹ Although visually impaired patients receive OHI, many forget the instructions once they return home. This can lead to inadequate OH and, consequently, to caries and periodontal disease.² This complication is relevant in settings where access to dental care is limited and where autonomy in daily care is crucial for maintaining good oral health.²

2 | SOLUTION

To address the problem, a handout in braille was developed describing the modified Bass technique and interproximal hygiene. For this purpose, a visually impaired patient was asked to use the digital Braille reading and writing system to develop a series of graphemes that describe the steps of the technique, after a detailed verbal explanation. The system includes a symbol Braille generator called the universal element, which is a rectangular figure made up of six raised dots arranged in two columns of three dots each.³ Each dot is identified with a different number depending on the spatial position it occupies in the rectangle (Figure 1). The cognitive process is analytical-associative, with the grapheme as the fundamental minimum unit.⁴ Once the handout was obtained (Figure 2), another visually impaired patient was asked to interpret the graphemes, thereby confirming that the information provided was correct.

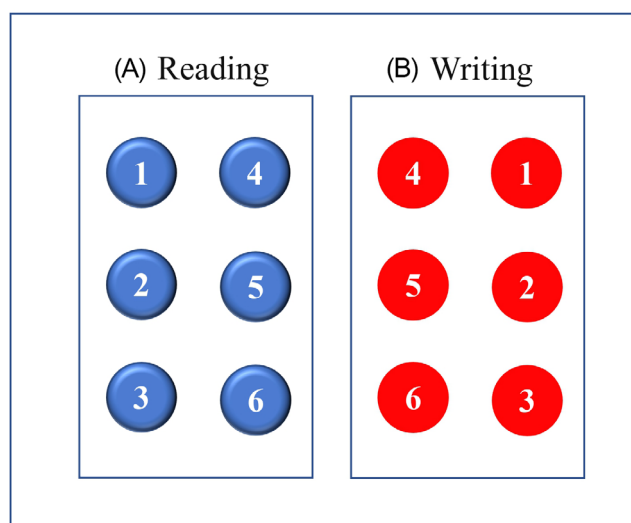


FIGURE 1 The Braille generator is a matrix of three rows by two columns, numbered from top to bottom and left to right. The combination of the six dots allows for 64 different combinations, including the one with no dots, which is used as a blank space. For reading, we start on the left, from top to bottom 1, 2, and 3; then on the right from top to bottom 4, 5, and 6.

During the initial assessment, students recorded the O'Leary and Bleeding on Probing (BoP) indices and performed the OHI. Patients then received the Braille handout and were asked to return in seven days for follow-up and reassessment.

3 | RESULTS

In the follow-up, a reduction in O'Leary and BoP indices was observed compared to pre-OHI indices (Table 1).

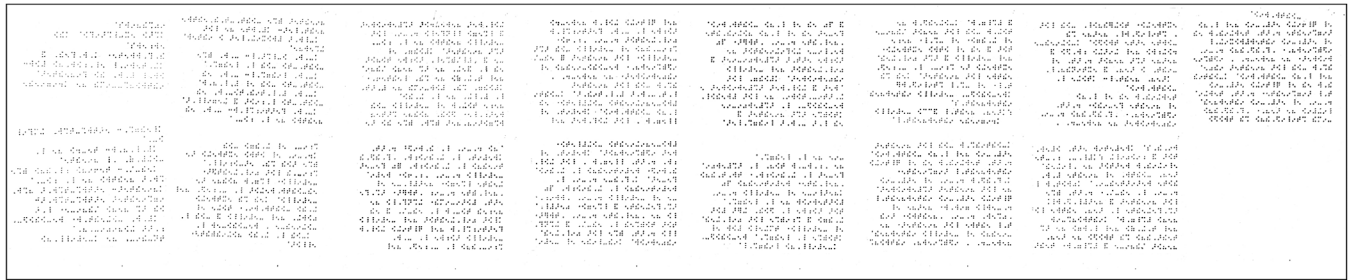


FIGURE 2 Braille Handout on the modified Bass Technique and Interproximal Hygiene. This material was created by a visually impaired patient using a Braille generator, which allows for 64 combinations. The presence or absence of dots determines the letter, number, or symbol to be read. Additionally, complementary signs are necessary; when placed before a specific combination of dots, they turn a letter into an uppercase, italic, number, or a musical note.

TABLE 1 Mean (\pm SD) of O’Leary and Bleeding on Probing (BoP) indices at baseline and at a follow-up visit.

Periodontal Indices	Baseline	One week post-OHI	p-value
% of sites with BoP	24.7 \pm 9.6	12.7 \pm 4.9	0.01 ^a
% of sites with Biofilm	47.1 \pm 9.2	30.8 \pm 5.6	0.001 ^a

The significance of differences between groups at each time point was assessed using the unpaired t-test and X^2 test ($p < 0.05$).

^aStatistically significant difference. Oral Hygiene Instruction (OHI). $n = 14$ (six males and eight females).

Regarding perception, students applied a short survey based on the PEMAT⁵ model to the patients to assess their satisfaction with the tool because it allowed them to reinforce the instruction given, remember forgotten actions, and correct wrong maneuvers autonomously.

However, it was found that only people who knew how to interpret Braille could benefit from this tool. In these cases, the student read the same instrument provided in the Braille text and recorded it on the patient’s mobile phone.

These results suggest that the Braille handout can be an effective complementary tool for dental students in providing OHI to visually impaired patients, as it reinforces the learning of OH techniques.

The lesson learned is the importance of adapting available resources and strategies according to patients’ individual capabilities to maximize their effectiveness. This experience highlights the need for undergraduate dentistry course curricula to include inclusive and personalized communication in health education, enabling visually impaired patients to maintain good OH autonomously. This approach reinforces key skills and contributes to the students’ professional development. Further studies are recommended to evaluate the effectiveness of this tool

using standardized protocols, with appropriate internal and external validity, including medium- and long-term patient follow-ups, among other measures.

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