

Comparative Evaluation of Knowledge, Attitude and Practice of Alginate Impression Materials for Partially and Fully Dentulous Cases among Dental Students

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Abstract: The questionnaire was distributed to students visiting department of prosthodontics at vspm dental college and research centre, Nagpur to 3rd year, final year & interns to evaluate their knowledge and practice of alginate impression material. The data was collected and statistically analyzed. And data revealed that final year showed the higher percentage and the difference between them and students of 3rd year was statistically significant ($p > 0.05$) while the difference between intern and 3rd year was statistically non-significant ($p < 0.05$). From above data, it is concluded that academic assessment should be done to increase the knowledge during training courses. Thus, more efforts to be made in this aspect to get benefits.

Keywords: alginate, dental materials, impression material, partially dentulous cases, infection control, disinfection, dental students

1. Introduction

The choice of an impression material for a particular situation depends on the treatment being provided, operator preference, and so on. Even with the introduction of more advanced and more accurate rubber base impression materials, irreversible hydrocolloid impression materials have stood the test of time. (Vidyashree et al 2008).

Alginate is an elastic, irreversible hydrocolloid impression material. Irreversible hydrocolloid impressions are important part of indirect restorations. Alginate is one of the most commonly used dental materials. Alginate impression is a simple, cost-effective, and important part of dental practice.

They are playing foremost role in clinical practice even today; therefore, it becomes compulsory to understand the material and follow certain guidelines for perfect, foreseeable impressions and hence to avoid repetition of impression/restorations. The purpose of this study is to evaluate knowledge and compare alginate material impressions for partially and fully dentulous cases among dental students.

1.1 Aim and Objective

Comparative evaluation of knowledge, attitude and practice of alginate impression materials for partially dentulous cases among dental students.

Table 1: Practice Related Questions of Alginate Impression Material

Questions	Options	N	%
1) Which materials will you use for partially dentulous patient?	A) Compound impression(impression compound+alginate)	17	6.7%
	b) Condensation silicone	2	0.8%
	c) Alginate	220	86.6%
	d) Addition silicone	15	5.90%
2) Why do you use alginate?	A) Ease manipulation	5	2%
	B) Does not need special device	13	5.1%
	C) Not expensive	10	3.9%
	D) All of the above	226	89%
3) Tray used for making alginate impression:	A) Perforated	215	84.64%
	B) Non- perforated	10	3.94%
	C) Rim lock perforated	23	9%
	D) Non - rim lock perforated	6	2.4%
4) What kind of water do you use for mixing alginate?	A) Distilled Water	21	8.26%
	B) R.O water	11	4.3%
	C) tap water	222	87.4%
5) Working time of fast set alginate:	A) 20-50 seconds	203	79.9%
	B) 60-75 seconds	24	9.4%
	C) 1.2-2.0 minutes	22	8.7%
	D) none	5	2%
6) Working time of regular set alginate:	A) 1-1.5 minutes	201	79.1%
	B) 1.6-2 minutes	19	7.5%
	C) 2.5-3.75 minutes	21	8.3%

	D) 3-4 minutes	13	5.1%
7) It is preferred to pour alginate impression:	A) Immediately	223	87.8%
	B) After 20 minutes	13	5.11%
	C) After 30 minutes	16	6.3%
	D) After 45 minutes	2	0.8%

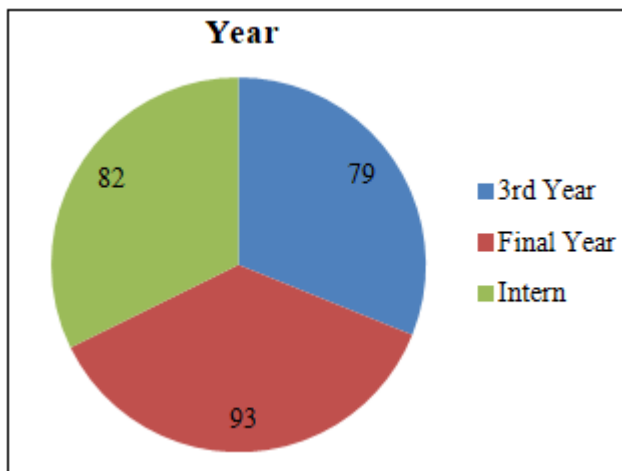


Figure 1

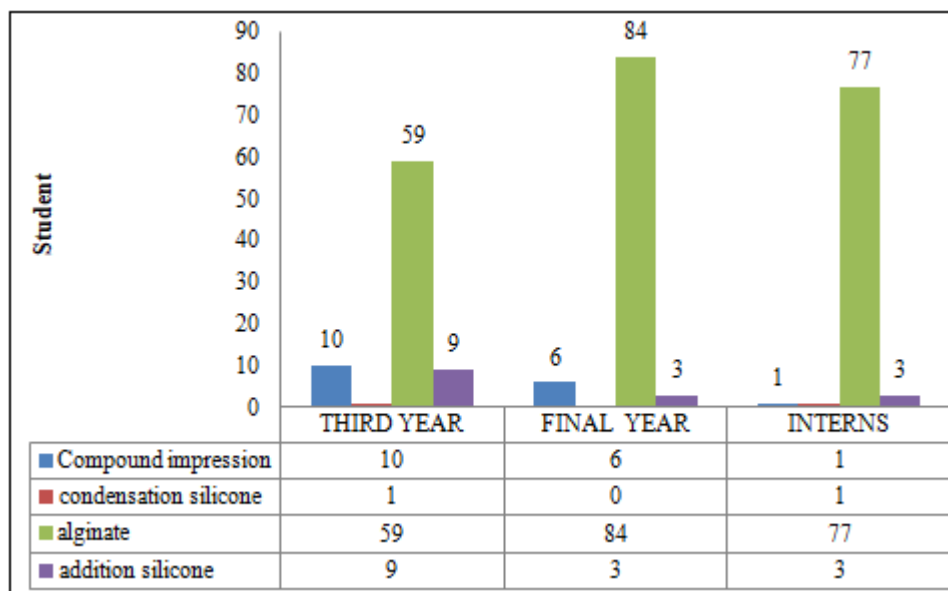


Figure 2

Table 2: Knowledge Related Questions of Alginate Impression Material

Questions	Options	N	%
1) If you don't pour the impression how will it affect your impression?	A) Dimensional stability	9	3.5%
	B) Detach from tray	2	0.8%
	C) Material will shrink	9	3.5%
	D) All the above	234	92.1%
2) Do you disinfect the impression after retrieving from the patient mouth?	A)Yes	242	95.3%
	B) No	12	4.7%
3) How long do you retrieve the cast from the impression after pouring?	A) 30-60 minutes	222	87.4%
	B) 60-90 minutes	23	9%
	C) 2hours	7	2.7%
	D)After 4 hours	2	0.8%

Where N=Frequency, And %=Percentage

Table 3: Correct answers for practice related questions of alginate impression material by year

Questions	Year	N	%
1) Which materials will you use for partially dentulous patient?	3 rd Year	59	74.7%
	Final Year	84	90.3%
	Intern	77	94%
2) Why do you use alginate?	3 rd Year	58	73.4%
	Final Year	87	93.5%
	Intern	81	98.8%
3) Tray used for making alginate impression:	3 rd Year	64	81%
	Final Year	75	80.7%
	Intern	76	92.7%
4) What kind of water do you use for mixing alginate?	3 rd Year	70	88.6%
	Final Year	82	88.2%
	Intern	70	85.4%
5) Working time of fast set alginate:	3 rd Year	70	88.6%
	Final Year	63	67.8%
	Intern	70	85.4%
6) Working time of regular set alginate:	3 rd Year	68	86%
	Final Year	62	66.7%
	Intern	71	86.6%
7) It is preferred to pour alginate impression:	3 rd Year	65	82.3%
	Final Year	85	91.4%
	Intern	73	89%

Where N=Frequency, and %=Percentage

Table 4: Correct Answers for Knowledge Related Questions of Alginate Impression Material by Year

Questions	Year	N	%
8) If you don't pour the impression how will it affect your impression?	3 rd Year	73	92.4%
	Final Year	82	88.2%
	Intern	79	96.3%
9) Do you disinfect the impression after retrieving from the patient mouth?	3 rd Year	76	96.2%
	Final Year	90	96.7%
	Intern	76	92.7%
10) How long do you retrieve the cast from the impression after pouring?	3 rd Year	74	93.7%
	Final Year	72	77.4%
	Intern	76	92.7%

Where N=Frequency, and %=Percentage

2. Materials & Methods

The study included a close ended questionnaire which comprised of ten questions based on knowledge, attitude and practices. Questionnaire was designed and delivered in hard copy to students participating clinical period to 3rd year, final year & interns to evaluate their knowledge of alginate impression material. Data was collected and statistically analyzed.

3. Results

A total of 254 students responded to this survey. Figure 1 shows the distribution of students according to year. Just under three quarter (86.6%, n=220) responded that alginate is preferred to use for partially dentulous patient (figure 2).this meant that a majority of respondents agreed to the fact that alginate would always turn out to be the right kind of option for the impression material.

Two twenty (86.6%) students responded appropriately on why they use alginate. One hundred eighty eight (71.5%) students responded correctly that perforated tray is used for making impression.

4. Discussion

From way back, alginate impression material has been a used of most dental practices. It forms a bulk of our clinical practice. With passing time dentists would soon implement using the digital impression techniques to be more perfect as these create impressions which will be completely accurate and which will produce the best kind of work. Till this process takes place it is important to follow technique that produces best and accurate alginate impressions.

It was marked that time and cost was not treated as being important factors which influenced the disinfecting processes. The undergraduate doctors usually failed in carrying out the procedure correctly, because of lack of practice and inadequate teaching. The results obtained showed that there was inadequate practice and knowledge among undergraduate dental students. This is why it was stated that practice and knowledge both should be empowered in the field of dentistry. The attitude of doctors regarding the infection control system is completely self-assessed. The results which were obtained from the following study had evaluated their knowledge about using alginate as being fair or good. The findings showed that the student education for impression materials need to be improved and more awareness should be brought in. It was also subjected that the good infection control processes should be taught to the undergraduates to develop the right kind of attitude towards the work. It was also stated that the students from the dental colleges must be presented with right kind of opportunities where they can learn how to use the best impression material and at the same time they can implement the knowledge regarding the infection control system (Guiraldo, 2015). The study also stated that dental institutes should have knowledge and practice regarding the impression material and disinfecting material, and techniques used by the dentists. Knowledge for same can be upgraded by conferences and seminars, lectures, training programs and workshops. The results from the studies have shown that most of the students and the professors have done disinfecting procedures on the alginate. Although there are still some dental students who lack knowledge regarding disinfection. It is important that students have proper knowledge and practice for use and disinfection of impression material used. Not disinfecting the impression properly can invite cause contamination and risk of other infections to the practitioner as well as the patient. The teaching and learning techniques needs to be improvised.

5. Conclusion

Within the limitations of our study it was concluded that students of final years showed reasonable and acceptable knowledge and practice of alginate impression material. The results have proved that alginate can be best material that can be used in restoration procedures and for provisional crown impressions. They are even today used in the preparation of the indirect restorations . There are various benefits of using the alginate as the impression material since it holds diagnostic properties as well. This is so because it can be poured several times and it also has less clean up time because of the preparation method.

6. Suggestions

Immediate academic assessment to increase the awareness of students is required during training courses. Thus, small advances need to be made in this aspect to reap great and huge benefits beside continues clinical, oral and theoretical examinations.

References

- [1] Ashley M. Making A Good Impression: A "How to' Paper on Dental Alginate. *Dent Update* 2005; 32:169-75
- [2] Christensen Gj. 2006. Making fixed prostheses that are not too high. *J Am Dent Assoc.* 2006; 137:96–8.
- [3] Fatema, S. 2013. A Comparative Study on accuracy and reproducibility of alginate and addition reaction 3.silicone as an impression materials. *Update Dental College Journal*, 28-33.
- [4] Anusavice Kj, Kenneth J. Phillips' Science of Dental Materials. 11th Ed. Elsevier; 2003. Pp.210–30
- [5] Giordano R. Impression Materials: Basic Properties. *Gen Dent.* 2000; 48: 510–6.
- [6] Stewart, Rudd, Kuebker. Clinical Removable Partial Prosthodontics. 2nd Ed. Ishiyaku Euro America Inc Publishers; 1997.
- [7] Ta, I. 2015. Dimensional Changes of Alginate Dental Impression Materials-An Invitro Study. *Europe Pmc*, 1205–10.
- [8] Todd, J. A. 2013. Dimensional Changes Of Extended-Pour Alginate Impression Materials. *American Journal of Orthodontics And Dentofacial Orthopedics*, S55–S63.
- [9] Vidyashree Nandini, K Vijay Venkatesh, K Chandrasekharan Nair. *J. Conser. Dent.*, 11 (1) 37-41.