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Original Research

Qualitative assessment of work authorisation forms recorded by dental undergraduate students

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ABSTRACT:

Introduction: Complete work authorizations to dental laboratories provide a means for increased professional quality assurance and satisfaction in fixed partial denture service. This effective channel of communication enhances the quality of the completed restorations. **Purpose:** To evaluate the effectiveness of communication between the dental undergraduates and the dental technologists in AIMST University, Malaysia. **Materials and methods:** 221 work authorisation sheets entered by the dental undergraduates were evaluated for its content, completeness and clarity. The data received was tabulated using Microsoft excel and converted to a percentage for descriptive analysis using SPSS software. **Results:** Of the 221authorisation forms surveyed, 35.70% represented complete, clearly written forms. Results from this survey suggest that there is lack of communication between dentists and dental laboratories through work authorization forms regarding material selection,pontic design, type and design of connectors and occlusion. **Conclusions**: The work authorization forms reflect lack of communication that exists between dental students and technologists. Dental students should be educated thoroughly about proper work authorization form writing and also its legal importance. Dental technologists also should be able to reject work authorization forms that lack standard information regarding prosthesis fabrication. Standard guidelines for the required information in the work authorization form should be established to improve the quality of service.

Keywords- Authorisation form, Dental lab, Communication

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INTRODUCTION

Prosthodontics is a discipline that requires a synergy between the dentist and dental technician, in order to fabricate dental prostheses with acceptable fit, function and aesthetics.(1) Besides, effective and clear communication between dentist and dental technician plays an important role in providing quality prosthesis.(2) Clear effective communication of design features between dental practitioners and dental technicians has been recognized as a main factor that contributes to the production of high quality fixed and removable prosthesis. Inadequate communication of design information results in a prosthesis that has been fabricated with little reference to the important clinical or biological information, and the potential for a poorly designed prosthesis to cause tissue damage is evident.(3)

The problems of inadequate design information, or inadequately communicated designs, are not new to dentistry. The dentist's responsibilities are not only to provide clear written instructions in work authorization form to the technician, but also to deliver accurate impressions with no distortion and appropriate infection control measures before sending materials to the dental laboratory.(4) A number of studies(5 -12) from around the world have highlighted the need for improved communication methods and production techniques between dentists and dental technicians during fabrication of fixed restorations. Problems have been identified in various parts of production processes and communication ranging from quality of impressions, to adequate tooth preparation, articulation, and adequate instructions regarding the use of materials. The fabrication of high quality, durable dental prosthesis is considered a reflection of the hand skills of both the dental practitioner and dental laboratory technician. Therefore, identifying the areas that lack the

communication with the laboratory would help to minimise the errors in future. This awareness can be made at the undergraduate level itself to deliver a well-functioning and satisfied dental prosthesis to the patient in their future dental practice.

The aim of this cross-sectional study was to evaluate the effectiveness of communication between the dental undergraduates and the dental technologists in AIMST University.

MATERIALS AND METHOD

A cross sectional study was conducted in AIMST University, Malaysia. 221 work authorization form for fixed partial denture written by the undergraduate students in AIMST University were selected and was evaluated. The assessment evaluated the completion in recording data in the work authorization forms for fixed partial dentures. Data were tabulated using Microsoft Excel. A descriptive analysis was performed using SPSS Statistics Software. Bar charts were prepared on the basis of statistics.

DATA ANALYSIS

Figure 1: shows the overall completion of the form

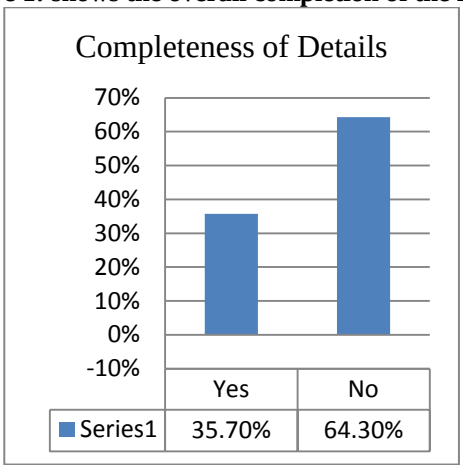


Figure 2: shows the percentage of entry of shade selected in the form.

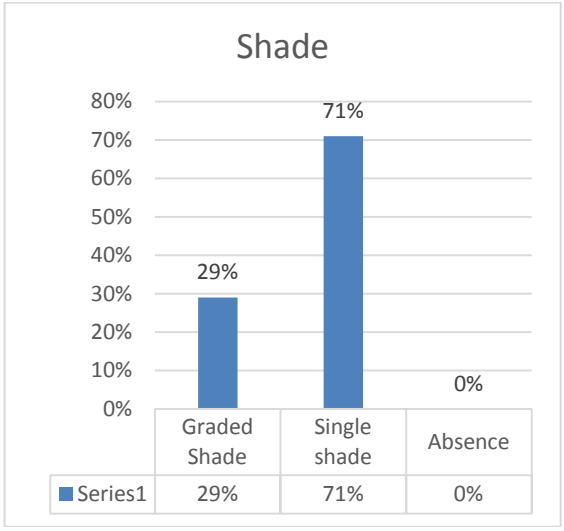


Figure 3: shows the percentage representation of occlusion in the form

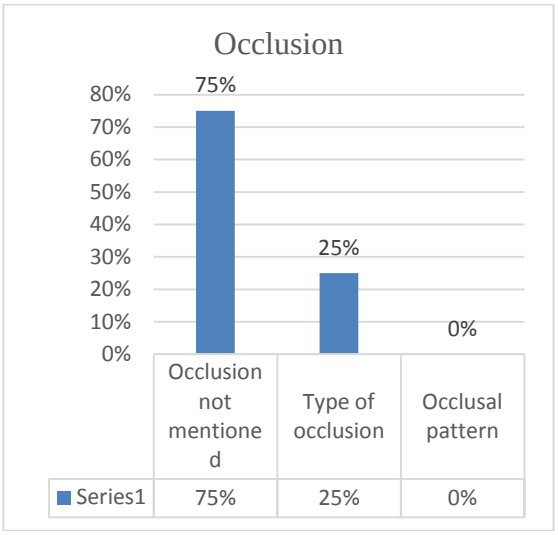


Figure 4: shows the percentage of entry of material selection in the form

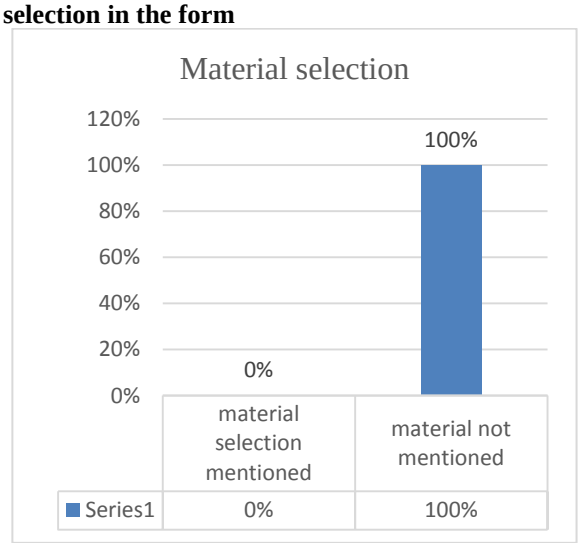


Figure 5: shows the percentage of representation of pontic design in the form

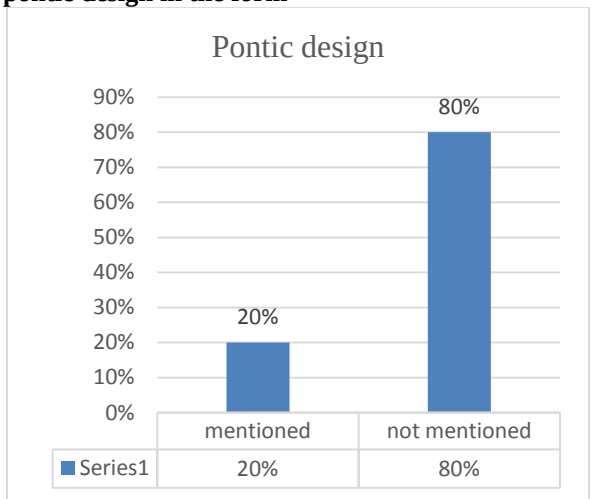


Figure 6: shows the percentage representation of the connector design

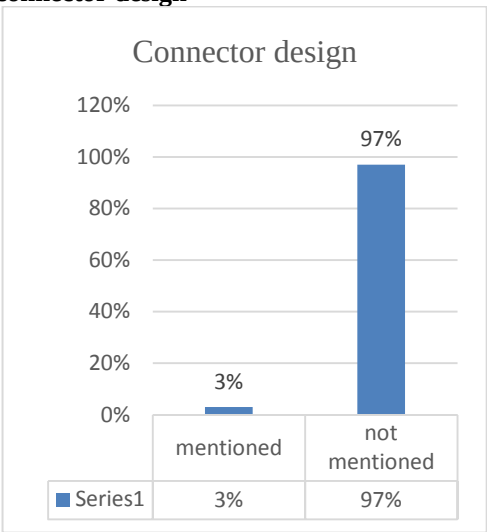


Figure 7: shows the inclusion of details regarding the stage at which prosthesis is required for the following appointment

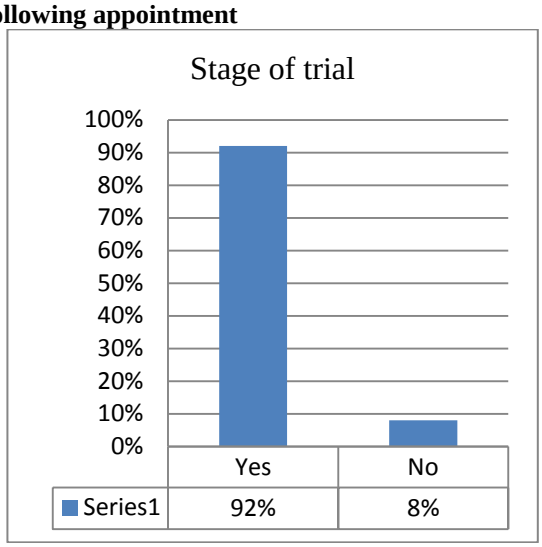
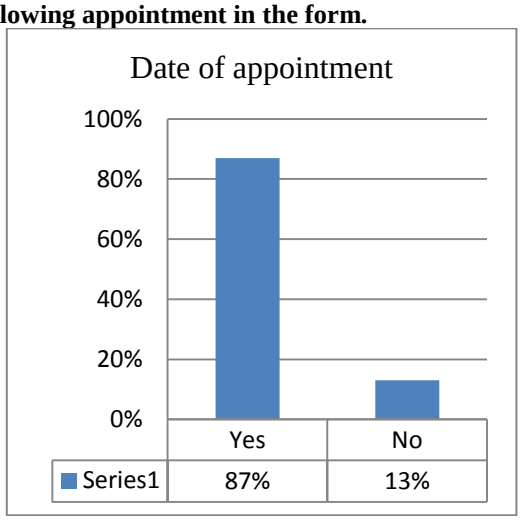


Figure 8: shows the percentage of entry of date of following appointment in the form.



RESULTS

Of the 221 work authorization forms, only 35.70% had all the details recorded accurately whereas 64.30% recorded only the design of the fixed prosthesis and shade. The shade selection was recorded in all the forms. Graded shade selection was described only in 29% forms whereas 71% forms represented only single shade for the fixed prosthesis. The type of occlusion chosen for the prosthesis was mentioned in 25% forms whereas 75% did not have occlusion mentioned it. None of the forms represented the occlusal pattern required for the fixed prosthesis. None of the 221authorisation forms described the material of choice for the prosthesis. The pontic design was represented in 20% forms whereas 80% failed to represent it. The location and type of connector was represented in only 3% of the forms and 97% failed to represent it. 92% forms showed the request of the stage at which the prosthesis is required for the next appointment whereas 8% never mentioned it. 87% entered the date of follow up whereas 13% did not give a time frame for the technologist to work for the prosthesis.

DISCUSSION

The purpose of this research was to evaluate the effectiveness in providing a written prescription for fixed prosthesis by dental undergraduate students. Work authorisation forms filled by the students were evaluated for the presence of details such as shade, occlusion, material selection, pontic design, metal ceramic butt joint, date of follow up appointment and the stage of prosthesis required. SudhirPawar et al stated that the conventional crown and fixed partial denture treatment modality being a very commonly practiced and highly successful in restoring the functions of lost or missing teeth and thereby the comfort of individual, care must be taken to avoid the common causes leading to their failures.[13] Hana M.Al-AlSheikh stated that quality of communication between dentist and dental technicians should be clear and effective especially regarding the design information to ensure fabricating quality fixed prostheses.[14]

In our research study, the information gathered regarding the quality of written instructions is shown. The results of this study showed some aspects of communication between undergraduate dental students and dental technicians at the dental clinic of AIMST University. From final result it was shown that 35.70% of instructions filled in by the dental students were clear and precise, which indicated that the work authorization form were complete before handling to technicians and it is legible for technicians to provide the best prosthesis. The result is about to same with the studies conducted by C. A. Stewart, where of the total, 33% were considered compliant and information provided in form is sufficient.[15] 64.30% failed to write the prescription legibly and completely. Based on the study conducted on an audit

of dental prescriptions between clinics and dental laboratories, it was shown that a breakdown in communication between dentists and technicians through the use of prescriptions is evident even within a close working environment which is in agreement with the present study. [15]

Regarding to shade selection, 100% of the dental students entered the shade details in the form. But graded representation was followed by very few. Based on the study conducted by Gaspraik C et al., shade matching ability of dental students were considered better in condition under corrected light [16] and is well practiced in the AIMST University dental clinic which enables them to write the prescription without fail. In 2010, V N V Madhav et al that the first step to achieving clinical success in esthetic dentistry is to correctly identify the patient's needs and to imitate tooth color with the material that most closely matches, and to communicate this information to the laboratory if the restoration is to be carried out there. [17] The accurate representation of life like tooth color can be done best with a graded drawing of tooth of interest and this needs to be more emphazised among the undergraduate students. To date, there is no systematic training on visual shade determination for dental technicians or dentists.[17-20)] Therefore; all attempts to improve the color communication fails at this barrier. For successful shade matching, a combination of technology- based system, shade tab, and reference photography can also be used[21-23].

Many studies show that fixed prosthesis failures are varied and often complex in cause and effect. When a problem occurs, the design and condition of the restoration and associated structures must be considered.[24]The study shows that majority of the dental undergraduates fail to write the type of occlusion required for the fixed prosthesis in the authorization form. This could be either due to the limited knowledge of the undergraduates on evaluating the occlusion and interpreting the same or could be due to the fact that they rely on the dental technologists in selecting the occlusion for the prosthesis. Berry J et al stated that most of the dental technicians did not trust the authenticity of the occlusal relationship records provided by the dental students.[12] This could be another reason for the students failing in mentioning the details related to occlusion in the laboratory forms.

For the pontic design and material selection for coping and veneering, majority of the dental undergraduates failed to represent the same. It could be due to the fact that the technologists in dental schools have direct communication with the students and they select the pontic design directly with the technologists based on the location of the prosthesis. Most of the dental schools have limited variety of materials for selection and hence the need for representation rarely occurs compared to private dental laboratories. Nazia Zareen.I et al stated that the guidance of clinician in deciding the pontic design is as important as fabricating the well-fitting prosthesis.[25] Dentists also frequently failed to prescribe the material to be used or the design of the prosthesis, incorrectly leaving the decision to the dental technician. [12]

As Al Dosari A.A.F. stated , it is important that dentists recognize their ethical and legal responsibilities from the first day of their practice in dental clinic. Dentists have the knowledge and authority to delegate laboratory procedures based on patients' functional and aesthetical demands. Therefore, it is the responsibility of the dentist to pass on message in clear and correct manner to the technicians.[26] It also confirms an international trend of poor communication noted in the UK Lynch and Allen's study. [27]

Result shows that 92 % mentioned the stage at which they require the prosthesis for the following appointment and only 87% of dental students entered the date of following appointment appropriately thereby alerting and providing reasonable and suitable time duration for technician to complete a quality prosthesis. A reasonable time length permits technician to produce a prosthesis which is perfect no matter from esthetics or functional aspect, while 13% of students fail to mention the time thereby limiting the reasonable time duration for the technologists. Insufficient time to the technician results in production of prosthesis that is constructed with an inadequate consideration to important clinical and biological factors and this can cause tissue damage.

As Barsby, M.J. stated, the communication between dentists and technicians primarily occurs based on the use of work authorization forms, the forms are usually the entire basis on which the appliance is constructed.[28] Therefore, relevant design information must be clearly and effectively transmitted from the dental student to the laboratory technicians. Hence, within the limitations of the study, the following can be concluded that More effort should be exerted by dental students to enhance the quality of prosthesis produced by dental laboratories and dental students are not aware of proper method in filling up work authorization form. The quality of written instructions in the work authorization form was inadequate. Quality of communication between dental students and technician in AIMST Dental Clinic can be considered as satisfied. Hence based on the current study, it could be noted that further undergraduate and staff training on laboratory prescription writing will be necessary through staff training events and developments in the undergraduate curriculum.[29]

CONCLUSION

The following recommendation is essential to improve quality of prosthesis to be issued to the patients where all the dental students should clearly understand the art of writing a proper work authorization form in their preclinical years to apply it during the clinical years and in future dental practice.

A standard guideline for the required information in work authorization form should be established in a clear and simple manner. In order to avoid misunderstandings, the requests and instructions must be clear and strong, and each party must identify and respect the views of the others. The quality of dental care is likely to be maximized when dentists and technicians are communicating well, hence, dental students must communicate and always approach technicians regarding the case submitted to avoid any unnecessary error during the production of prosthesis.

REFERENCES

1. Malament K A, Pietrobon N, Nesser S. The interdisciplinary relationship between prosthodontics and dental technology. Int J Prosthodont 1996; 9: 341–354. [PubMed]
2. R.M. Basker, J.C. DavenportProsthodontic treatment of the edentulous patient(4th ed.), Blackwell Munksgaard, Oxford (2002)
3. LynchD,AllenPF.Qualityofwrittenprescriptionsandmasterimpressionsforfixedandremovableprosthodontics:acomparativestudy.BrDentJ (2005) ;198(1):17–20
4. Lynch, Christopher, Mcconnell, Robert, Allen, Patrick, 2005/12/01, 502; 4, 506, 508, Communicating Design Features for Fixed and Removable ProsthesesVL - 32
5. Jenkins S J, Lynch C D, Sloan A J, Gilmour A S. Quality of prescription and fabrication of single-unit crowns by general dental practitioners in Wales. J Oral Rehabil 2009; 36: 150–156. [PubMed]
6. Aquilino S A, Taylor T D. Prosthodontic laboratory and curriculum survey. Part III: fixed prosthodontic laboratory survey. J Prosthet Dent 1984; 52: 879–885. [PubMed]
7. Leith R, Lowry L, O'Sullivan M. Communication between dentists and laboratory technicians. J Irish Dent Assoc 2000; 46: 5–10. [PubMed]
8. Lynch C D, Allen P F. Quality of communication between dental practitioners and dental technicians for fixed prosthodontics in Ireland. J Oral Rehabil 2005; 32: 901–905. [PubMed]
9. Afsharzand Z, Rashedi B, Petropoulos V C. Communication between the dental laboratory technician and dentist: work authorization for fixed partial dentures. *J Prosthodont* 2006; 15: 123–128. [PubMed]
10. Hatzikyriakos A, Petridis H P, Tsiggos N, Sakelariou S. Considerations for services from dental technicians in fabrication of fixed prostheses: A survey of commercial dental laboratories in Thessaloniki, Greece. J Prosthet Dent 2006; 96: 362–366. [PubMed]
11. Juszczyk A S, Clark R K, Radford D R. UK dental laboratory technicians' views on the efficacy and teaching of clinical-laboratory communication. Br Dent J 2009; 206: E21. [PubMed]
12. Berry J, Nesbit M, Saberi S, Petridis H. Communication methods and production techniques used by dentists and commercial dental laboratories regarding fixed prosthesis fabrication: a UK based survey. Part 1: Communication methods. Br Dent J 2014; 217.
13. SudhirPawar. Failures of crown and fixed partial dentures-A clinical survey. Int. Journal of Contemporary Dentistry (2011) , Volume 2, No 1 120-23.
14. Hana M.Al-AlSheikh, Quality of communication between dentists and dental technicians for fixed and removable prosthodontics, King Saud University Journal of Dental Sciences,(July 2012)), Volume 3, Issue 2,(July 2012), Pages 55-60.
15. Stewart,CA. An audit of dental prescriptions between clinics and dental laboratories. Br Dent. J. 2011. Aug.12;211(3): E5.
16. Curd FM, Jasinevicius TR, Graves A, Cox V, Sadan A. Comparison of the shade matching ability of dental students using two light sources. J Prosthet Dent 2006; 96:391-6.
17. Egger B. Der Status quo der Ästhetik. Quintessenz Zahntech 1997; 23:191–204.
18. Preston JD. Der gegenwärtige Entwicklungsstand der Farbbestimmung und Farbanpassung. Part I. Quintessenz Zahntech 1985; 11:863–873.
19. Preston JD. Der gegenwärtige Entwicklungsstand der Farbbestimmung und Farbanpassung. Part II. Quintessenz Zahntech 1985; 11:957–965.
20. Clark BE. The color problem in dentistry. Dent Digest 1931:8.
21. Chu SJ. The science of color and shade selection in aesthetic dentistry. Dent Today. 2002;21(9):86-9.
22. Chu SJ, Trushkowsky RD, Paravina RD. Dental color matching instruments and systems. Review of clinical and research aspects. J Dent. 2010;38 Suppl 2:e2-16.
23. Chu SJ. Clinical steps to predictable color management in aesthetic restorative dentistry. Dent Clin N Am. 2007;51(2):473-85.
24. Perel ML. "A modified sanitary Pontic". J Prosthet Dent. 28(6), 1972, 589-92.
25. Nazia Zareen.I , DR. Revathy Gounder. Pontic Design Considerations and their Complications in General Population. Int. J. Pharm. Sci. Rev. Res., 40(1), September – October 2016; Article No. 55, Pages: 304-306.
26. Al Dosari A.A.F., Habib S.R., Alnassar T., Alshihri A., Kamalan R., The current considerations in the fabrication of implant prostheses and the state of prosthetic complications: A survey among the dental technicians, Saudi Dent J , 2018 Oct;30(4):299-305.
27. Lynch and Allen, 2005a, C.D. Lynch, P.F. Allen Quality of communication between dental practitioners and dental technicians for fixed prosthodontics in Ireland, J. Oral Rehabil., 32 (2005): 901-905.
28. Barsby, M.J., Hellyer, P.H., Schwarz, W.D. The qualitative assessment of complete dentures produced by commercial dental laboratories. Br. Dent. J. 1995, 179: 51–57.
29. Dickie J, Shearer AC, Ricketts DN, Audit to assess the quality of communication between operators and technicians in a fixed prosthodontic laboratory: educational and training implications. Eur J Dent Educ. 2014 Feb;18(1):7-14.