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Research Article

## Quality of communication between dentists and dental laboratory technicians in Malta

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**Abstract. Purpose.** The purpose of this study was to assess the quality of communication between the dental clinic and dental laboratory from a dental laboratory technicians' point of view and to offer means for improving communication between these two workplaces.

**Methods and Materials.** This pilot study was carried out on 38 dental laboratory technicians comprising of 14 dental laboratory technicians from the Dental Laboratory –Dental Department, Mater Dei Hospital along with 24 dental laboratory technicians from private dental laboratories spread across the Maltese Islands. The study used binomial tests as the form for inferential analysis of results with the reference level of significance set up to 5% ( $\alpha = 0.05$ ) whereby a percentage of 75% was viewed as being significantly disparate from  $p = 50\%$  with 84.6% of statistical power, assuming a 95% level of confidence. The collection of data was taken through the use of a questionnaire issued on a one-time basis.

**Results.** The study reported 65.6% of dental technicians received impressions in a non-disinfected state ( $p = 0.110$ ). 40.6% of dental technicians found the written dental clinic prescription card instructions as 'Good' ( $p = 0.001^{**}$ ) whilst 46.9% 'Occasionally' interact with their dental patients ( $p = 0.215$ ). 31.3% of dental technicians view themselves as 'Important-Very important' ( $p = 0.302$ ). The majority of dental technicians are comfortable discussing prosthesis design with dentists (87.5%) ( $p \leq 0.001^{***}$ ).

**Conclusion.** Communication between the dental clinic and dental laboratory was found to possess several strengths and weaknesses in the eyes of Maltese dental technicians. There is room for improvement in communication between these two dental workplaces.

**Keywords:** communication, dentists, laboratory, clinic, technologists

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### 1 Introduction

Communication may be described as the action of sending and receiving information either through verbal or non-verbal forms (Berry et al., 2014). This may be seen through speech, writing, charts, maps, and images for example. Individuals possess the capacity to communicate through these various means with the overall aim being to bring about a degree of understanding between the person sending the information and the person receiving the information (Berry et al., 2014). Good quality communication between the dentist and the dental laboratory technician is considered fundamental since it influences the potential for producing high-quality prostheses (Lynch et al., 2005). This may be further expressed through certain dental clinics and laboratories shifting from a written to a computer-based form of communication (Alshiddi, 2014). The three most predominantly used forms of communication between the dental laboratory and dental clinic are: Paper-based communication, Online Web-based Communication and Dental Office–Laboratory Web Content Management System (WCMS) (Alshiddi, 2014).

Paper-based Communication- Usually evident through a laboratory card issued from the dental clinic and forwarded onto the dental laboratory consisting of handwritten details clarifying specific important details to the dental laboratory technician. These details may come in the clinician's name, patient's

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identification, and a type of prosthesis to be manufactured for example. This method does, however, possess major drawbacks for communicating certain aspects of dentistry. This is the most frequent form of communication between the clinic and laboratory with only 26% of dental lab technicians indicating that the laboratory cards possessed the appropriate information which enabled them to perform their work to the best of their ability (Afsharzand et al., 2006). Another possible drawback of this form of communication arises when needing to successfully select the appropriate shade of the tooth, the lack of visual involvement may leave the technician speculating and requiring further information from his/her dental counterpart which would further delay the time for completion of the prosthesis (Alshiddi, 2014).

Online Web-based Communication- this is a form of communication whereby data may be transferred from the dental clinic to the dental laboratory employing the internet. This form of communication may appear advantageous for sending the laboratory patient impression scans and tooth shades (Alshiddi, 2014). This form of communication has become a satisfactory means for conveying information as this form may reduce time spent waiting for written laboratory cards from the clinic, may regulate collection of information, preprogramme preparation of proposed prosthesis and appliance along with its fabrication along with the ability to disclose certain sensitive information that one may wish to be kept private (Alshiddi, 2014). Telecommunication applications such as GoToMeeting and WebEx, for example, may help in allowing both the dentist and dental technician to interact with one another on cases from a more visual viewpoint (Alshiddi, 2014). Web conference applications such as these enable interaction with the patient especially in situations where it is difficult to arrange a face-to-face meeting with the patient. The dental technician may be able to grasp a clearer understanding of the patient's tooth shade for example. Conference calls enable the possibility for discussion and interaction amongst all involved and offer a viable means for communication of required data (Alshiddi, 2014). Dental Office-Laboratory Web Content Management System (WCMS)- Web content management system is a form of application software enabling dental colleagues to work and assist one another on any patient cases. It may be used as an instrument for communication between the dental clinic and dental lab and may even develop or enhance the working relationship between both dental workplaces (Alshiddi, 2014). Through this form of communication, work may be sent to dental clinics and dental labs in different locations with dental professionals being able to track patient cases whilst also possessing the option to update

their fellow dental colleagues on the progression of each case. An exclusive platform designed for the transferal of data between dental clinics and dental labs offers convenience for all with all important information being stored and accessible from one place.

Communication should not be strictly kept between the dentist and dental laboratory technician exclusively but also through other staff members such as dental assistants and receptionists in the dental office along with the dental lab owner, receptionist, and distributor of dental prosthesis. (Alshiddi, 2014).

The main purpose of this study was to assess the various communicative forms in terms of quality of communication between the dental clinic and dental laboratory from a dental laboratory technicians' point of view in the hope that it would offer a means for improving communication in both the Dental Laboratory-Dental Department, Mater Dei Hospital and also private laboratories.

## 2 Materials and Methods

The pilot study involved 38 dental laboratory technicians comprising of 14 dental technologists from the dental laboratory situated at Mater Dei Hospital Malta along with 24 dental laboratory technicians from private dental laboratories. Each individual's identity was kept anonymous over the course of the study period. Dental laboratory technicians were each issued initially with a participant information letter informing the participant of what the study entails along with a consent form which he or she were required to sign before participating in the research study. Following acquisition of each dental laboratory technicians' consent to the research study, Dental laboratory technicians were each issued with a questionnaire as shown in figure 1, to be filled in on a one-time basis. Following the investigation period, the dental laboratory questionnaire was collected from each participant. Each participant was able to contact the researcher in case of withdrawing from the study or in case of a query or question. The questionnaire used in this study sought to be centered around the dental laboratory technician's views on communication between the dental clinic and dental laboratory and featured responses that impact possible means for improvement on quality in communication between the dental laboratory and dental clinic along with any possible insight into main areas for wrongdoing in technical work and subsequent miscommunications. Binomial testing was the method of inferential analysis used throughout. This statistical testing form compared the number of positive responses against negative responses for each binary question. The reference level of significance for results was set at 5% ( $\alpha = 0.05$ ) whilst a percentage of 75% was viewed as being of greater statistical import-

**Quality of communication between dentists and dental laboratory technicians in Malta**

**QUESTIONNAIRE**

**Regarding disinfection**

1. Has dentist disinfected master impression properly?

YES      NO

If NO, how has master impression not been disinfected properly? Evidence of blood or other biohazards?

**Concerning written dental clinic prescription cards**

2. Please rate written instructions on a scale of 1 to 5. 1 being POOR and 5 being EXCELLENT.

1      2      3      4      5

If graded 3 or less, what can be improved in your opinion?

**Regarding removable prosthesis**

3. Is a design drawing indicated for RPD?

YES      NO

4. Does dentist use colour coding in design drawing?

YES      NO

5. Does dentist indicate the shade to be used for artificial teeth?

YES      NO

6. Does dentist offer insight on the type of occlusal scheme?

YES      NO

7. For temporary RPD, does the dentist specify which tooth or teeth require clasping?

YES      NO

8. Does dentist provide any information with regards to finishing of removable prosthesis?

YES      NO

9. Does the dentist form a posterior palatal seal on removable prosthesis?

YES      NO

**For fixed prosthesis**

10. Is form of metal alloy to be used specified?

YES      NO

11. Are the designs for the gingival margins shown?

YES      NO

12. Does dentist offer any sort of design drawings?

YES      NO

13. Are the number of pontics needed for fixed prosthesis specified?

YES      NO

14. Does dentist offer insight with regards to the shade to be used for teeth?

YES      NO

15. Has dentist indicated the type of occlusal scheme?

YES      NO

16. Is the type of porcelain glaze to be used specified?

YES      NO

**Regarding any form of prosthesis**

17. Does dentist contact you and ask for your input on design of prosthesis?

YES      NO

If Yes, how frequently

REGULARLY      SOMETIMES      SPARINGLY      RARELY

18. Do you feel comfortable and at ease when discussing prosthetic construction with dentist?

YES      NO

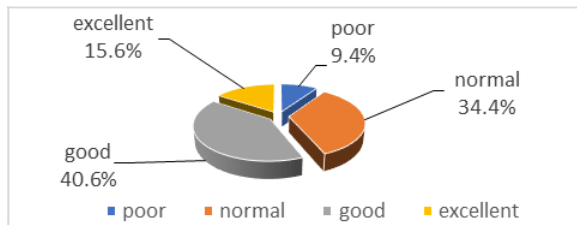
19. How often do you interact with the dentist's patient regarding their dental case?

FREQUENTLY      OCCASIONALLY      RARELY      NEVER

20. Do you feel secondary or integral throughout the fabrication process? Please rate in terms of importance on a scale of 1 to 5. 1 being UNIMPORTANT and 5 being EXTREMELY IMPORTANT.

1      2      3      4      5

**Figure 1:** Questions related to assessing the quality of communications between dentists and dental laboratory technicians in Malta



**Figure 2:** Assessment of written dental clinic prescription cards following 'Excellent', 'Poor', 'Normal', 'Good' component selections. Collected from MDH dental laboratory technicians and private dental laboratory technicians.  $N$  = number of participants tested.

ance as opposed to 50% with 84.6% of statistical power, assuming a 95% level of confidence.

### 3 Results

38 questionnaires were distributed to the Dental Laboratory/Dental Department, Mater Dei Hospital and private clinics of which 32 responded. 21 males and 11 females participated in the pilot study with their ages ranging from 21 to 64 years. Binomial testing was the method of inferential analysis used throughout. This statistical testing form compared the number of positive responses against negative responses for each binary question. The reference level of significance for results was set at 5% ( $\alpha = 0.05$ ) whilst a percentage of 75% was viewed as being of greater statistical importance as opposed to 50% with 84.6% of statistical power, assuming a 95% level of confidence. 34.4% of dental technologists believe that the master impressions are properly disinfected before entering the dental laboratory from the dental clinic. An absence of disinfection of the master impression tends to be the most likely scenario with more than half (65.6%) reporting an absence for disinfection of the master impression. Following Binomial tests, A  $p$ -value of 0.110 was found from the Binomial test when assessing the rate for disinfection.

When assessing the quality of written dental clinic prescription cards, a proportion larger than 50% (56.2%) found the quality of dental clinic prescription cards to be 'good-excellent' with a marginal percentage of only 9.4% viewing written dental clinic prescription cards to be of 'poor' quality (figure 2). A  $p$ -value of 0.001\*\* from the Binomial test supports the notion that written dental clinic prescription card instructions are properly written.

With regards to questions related to removable prostheses (table 1), the majority of dental laboratory technicians indicate that a design drawing is indicated for RPD (removable prosthetic denture) (59.4%) ( $p = 0.377$ ) whereas colour-coding was evident in design drawings in only 25% of cases ( $p = 0.007^{**}$ ). In 90.6% of cases, the dentist was shown to have specified the

shade to be used for the artificial teeth ( $p \leq 0.001^{***}$ ). This result was very conclusive. From the study, it was shown that more often than not, dentists in Malta do not tend to offer any insight into the type of occlusal scheme to be adopted (65.6%) ( $p = 0.110$ ) nor is a posterior palatal seal formed on the removable prosthesis (81.2%) ( $p = 0.001^{**}$ ). In the majority of cases (84.4%), the dentist was shown to specify the required tooth or teeth for clasping ( $p \leq 0.001^{***}$ ). There is a tendency for the dentist to give leeway and freedom to the dental laboratory technician to decide on how to finish the removable prosthesis with 59.4% ( $p = 0.377$ ) of cases confirming this. From the binomial tests, percentages differed largely to 50%, showing strengths and weaknesses of the workflow. Results amounting to statistical significance were seen in questions 4, 5, 7 and 9 whereas weak tendencies were seen in questions 3, 6 and 8. It can be assumed from the results gathered from questions related to fixed prostheses (table 2) that the form of metal alloy to be used for the fixed prosthesis is sometimes given to the dental technician with it being stated in 46.9% of cases and not specified in 53.1% of cases ( $p = 0.860$ ). Designs for gingival margins were found to be shown in only 31.3% of cases ( $p = 0.050$ ) with similar results found with regards to the dentist offering a form of design drawing 37.5% of the time only ( $p = 0.215$ ). There is a general tendency for dentists to specify the number of pontics needed for a fixed prosthesis (75%) ( $p = 0.007^{**}$ ) and for the dentist to offer insight with regards to shade to be used for teeth with findings reporting that this is the case 87.5% of the time ( $p \leq 0.001^{***}$ ). Just like in removable prosthesis design, the dentists do not tend to indicate the type of occlusal scheme to be used but rather it seems to be left to the dental laboratory technician with the type of occlusal scheme being offered to the dental laboratory technician on 37.5% of the time ( $p = 0.215$ ). The porcelain glaze to be used when finishing the fixed prosthesis was indicated on 18.8% of the time ( $p = 0.001^{**}$ ). Statistically significant results were found in questions 13, 14 and 16.

When it came to affirmative responses for contact between dentists and dental technicians (table 3), a slightly greater percentage than 50% responded with 'Yes' 53.1% ( $n = 17$ ) ( $p = 0.860$ ). The two-part question followed up with the dental technician being asked further to rate the level of contact between themselves and dentists to which 41.2% ( $n = 7$ ) responded with 'Sometimes' whereas the same number of dental technicians communicate with their dentist 'Sparingly' 41.2% ( $n=7$ ), a mere 17.6% ( $n = 3$ ) of technicians contact their dentist 'Rarely'. The  $p$ -value from Binomial tests ( $p \leq 0.001^{***}$ ) supports the notion that dental technicians are comfortable communicating with dentists.

		<i>Total</i>		<i>No</i>		<i>Yes</i>	
		<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Q3	Is a design drawing indicated for RPD?	32	100	13	40.6	19	59.4
Q4	Does dentist use colour-coding in design drawing?	32	100	24	75	8	25
Q5	Does the dentist indicate the shade to be used for artificial teeth?	32	100	3	9.4	29	90.6
Q6	Does the dentist offer insight into the type of occlusal scheme?	32	100	21	65.6	11	34.4
Q7	For temporary RPD, does the dentist specify which tooth or teeth require clasping?	32	100	5	15.6	27	84.4
Q8	Does the dentist provide any information with regards to the finishing of removable prosthesis?	32	100	19	59.4	13	40.6
Q9	Does the dentist form a posterior palatal seal on removable prosthesis?	32	100	26	81.2	6	18.8

**Table 1:** Questions related to removable prosthesis consisting of Total, No, Yes for questions 3–9. *N* = number of participants tested and number for Yes/No response.

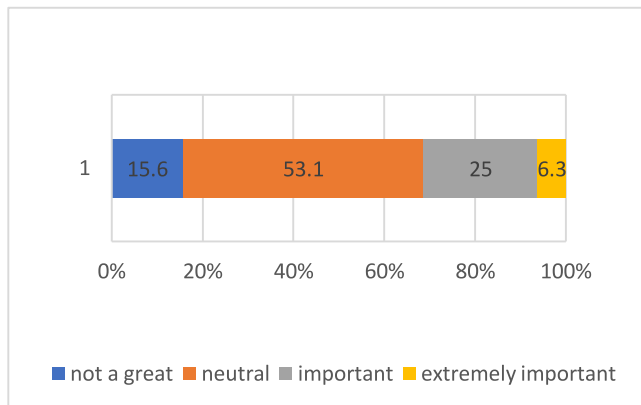
		<i>Total</i>		<i>No</i>		<i>Yes</i>	
		<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Q10	Is the form of metal alloy to be used specified?	32	100	17	53.1	15	46.9
Q11	Are the designs for the gingival margins shown?	32	100	22	68.7	10	31.3
Q12	Does the dentist offer any sort of design drawings?	32	100	20	62.5	12	37.5
Q13	Are the number of pontics needed for fixed prosthesis specified?	32	100	8	25	24	75
Q14	Does the dentist offer insight with regards to the shade to be used for teeth?	32	100	4	12.5	28	87.5
Q15	Has the dentist indicated the type of occlusal scheme?	32	100	20	62.5	12	37.5
Q16	Is the type of porcelain glaze to be used specified?	32	100	26	81.2	6	18.8

**Table 2:** Questions related to removable prosthesis consisting of Total, No, Yes for questions 10–16. *N* = number of participants tested and number for Yes/No response.

	<i>N</i>	<i>%</i>
Total	32	100
Frequently	5	15.6
Occasionally	15	46.9
Rarely	9	28.1
Never	3	9.4

**Table 3:** Frequency of dentist contact consisting of total selections with ‘Sometimes’, ‘Sparingly’, ‘Rarely’ selection of variables to choose from. *N* = number of participants tested and number for ‘Sometimes’, ‘Sparingly’, ‘Rarely’ responses.





**Figure 3:** Rating level of importance felt by dental laboratory technicians throughout prosthesis fabrication process following 'Not great', 'Neutral', 'Important', 'Extremely Important' component selections. Collected from MDH dental laboratory technicians and private dental laboratory technicians.  $N$  = number of participants tested.

Table 4 shows the responses gauged from dental technicians with regards to the interaction they receive from their patients with regards to the patients' specific dental case. From the results received, the majority stated that they 'Occasionally' interact with their patient regarding their case (46.9%) whilst 37.5% ( $n = 12$ ) view their interaction rate with the patient as 'Rarely-Never'. Only 15.6% of dental technicians 'Frequently' interact with their patients ( $p = 0.215$ ). The  $p$ -value shows a weak tendency and shows that there is not enough statistical evidence to assume that communication between dental technicians and patients is a general pattern.

17 out of 32 dental technicians feel 'Neutral' throughout the entire prosthesis fabrication process (53.1%). 53.1% feel neither greatly important nor 'extremely important' when it comes to the prosthesis fabrication process. It was worth noting that only 6.3% viewed themselves as 'Extremely Important' with 25% of dental technicians viewing themselves as being 'Important' whereas 15.6% of participants rated their level of importance throughout the prosthesis fabrication process as 'Not of great importance' ( $p = 0.302$ ). Figure 3 shows the dental technicians' Assessment of importance throughout prosthesis fabrication process in the form of a horizontal bar graph. No statistically significant results amounted from question 20.

## 4 Discussion

The research study was directed in a way to investigate the quality of communication between dentists and dental laboratory technicians from the perspective of a dental laboratory technician and to understand their beliefs on communication in the dental environment. A

percentage of 34.4% found the master impression to be disinfected correctly with disinfection indicated on the written dental prescription card. When compared to other studies, there is an obvious lack of tendency for disinfection to be indicated. A measly 7% of written instructions stated disinfection of prosthesis (Sui et al., 2014). This marginal figure was further echoed in the study by Alammari et al. (2018) who found 9.75% of written cases reporting disinfection of the master impression. These results conflicted with 81% of dental laboratory technicians reporting clear disinfection of the master impression in the clinical study performed by Al-AlSheikh (2012). Of those that marked that disinfection had not been clearly stated, many attributed improper disinfections mainly due to blood and saliva and/or any other debris left on the surface of the master impression. The 34.4% percentage as reported by dental laboratory technicians throughout Maltese dental laboratories may be viewed as an area for improvement. A possible means could be by ensuring the written dental clinic prescription cards contain details regarding proper disinfection whereby a dentist would have to mark for disinfection rather than leaving things to guesswork for the dental laboratory technician. Improper disinfection of master impressions increases the chance for cross-contamination in the dental workplace (Al-AlSheikh, 2012). The most common responses were that written instructions should specify disinfection whilst also specifying greater detail with regards to the patient age, gender as referenced in the studies by Dawson et al. (2008) and Goodlin (2006). By making such adjustments, this may in turn lead to an improvement in lab work and positive outcomes for the dentist, dental laboratory technician and patient.

Various studies showed a lack of concise communication between the dental clinic and dental laboratory (Alammari et al., 2018). Alammari et al. (2018) in their cross-sectional study reported 55% of written instructions for dental cases as poor whereas written instructions were described as 'clear' in 31% of cases in the study by Kilfeather et al. (2010). 36.5% of data was considered satisfactory and clear whilst 22.8% of cases were viewed as unsatisfactory and poor (Alammari et al., 2018). The cross-sectional study by Al-AlSheikh (2012) indicated that 50% of written instructions were clear and understandable. The research study reported a 'good-very good' assessment of 56.2% for written dental clinic prescription cards. In general, the results correlate with other studies with most dental laboratory technicians able to understand the instructions given by the dentist to fabricate a form of prosthesis.

Dental laboratory technicians from Malta were also asked for means for improvement concerning written dental clinic prescription cards if they gave the instruc-

	<i>N</i>	%
Total	17	100
Sometimes	7	41.2
Sparingly	7	41.2
Rarely	3	17.6

**Table 4:** Frequency for dental technologist interaction with dentist's patients regarding their dental case consisting of total selections with 'Frequently', 'Occasionally', 'Rarely', 'Never' selection of variables to choose from. *N* = number of participants tested and numbers for 'Frequently', 'Occasionally', 'Rarely', 'Never' responses.

tions an average rating.

Dental laboratory technicians were questioned on aspects regarding removable prosthesis, some of the key issues discussed were colour coding in design, occlusal scheme, and shade indication for example. 75% of dental technologists indicate that the dentist does not use colour coding in design drawings, colour coding may be seen as a useful tool to make use of since it may better illustrate all components of the removable prosthesis and perhaps limit the chance for misinterpretation if a design diagram is poorly drawn for example (Al-AlSheikh, 2012; Davenport et al., 2000). 56% of cases were recorded as not being colour coded (Al-AlSheikh, 2012). The type of porcelain glaze to be used for fixed prosthesis was specified in only 18.8% of cases in this research study, this figure conflicted with that found in the study by Al-AlSheikh (2012) which reported indication for the type of porcelain glaze in 73% of cases. All 32 dental laboratory technicians who participated in the study were asked to rate themselves in terms of their own opinion with regards to importance in the prosthesis fabrication process from 1 to 5 with 1 being unimportant and 5 being extremely important. From the results, only 6.3% of dental technicians viewed themselves as 'Extremely important' with most technologists feeling neutral throughout the whole process (53.1%). When compared to the cross-sectional study carried out by Berry et al. (2014), 26% of responses felt secondary throughout the fabrication process and were not given as much importance as they felt they warranted given their position as being entrusted with producing a prosthesis to function inside a patient's mouth (Davenport et al., 2000). The large majority, 87.5% feel comfortable and at ease when discussing prosthesis design with a dentist which gives reason to believe that dental technicians feel capable of taking on the workload given to them. From the research study, only 15.6% of dental laboratory technicians interact with patient's regarding their dental case 'Frequently' which suggests that there is room for improvement in this department for dental laboratory technicians to engage with dentist's patients on a more frequent basis. In the study by Dawson et al. (2008), 46.9% of dental laboratory technicians occa-

sionally interact with the patient whilst 28.1% rarely do. Dawson et al. (2008) suggest that engaging and exposing the dental technician more to the environment may yield better results with regards to decision making in treatment plans and restorative practices.

## 5 Conclusion

From the findings, it can be concluded that:

- Good quality communication between both dental technologists and dentists is not always present. Dental technologists were largely in agreement that they are more than comfortable when it comes to discussing prosthesis construction with their dentist (87.5%).
- Dental technicians view themselves as playing neither a prominent nor insignificant role in the process of prosthesis production.
- Contact with dentist's patients is not unusual however is not always observed.

## References

- Afsharzand, Z., Rashedi, B. & Petropoulos, V. C. (2006). Dentist communication with the dental laboratory for prosthodontic treatment using implants. *Journal of Prosthodontics*, 15(3), 202–207.
- Al-AlSheikh, H. M. (2012). Quality of communication between dentists and dental technicians for fixed and removable prosthodontics. *King Saud University Journal of Dental Sciences*, 3(2), 55–60.
- Alammari, M. & Albagar, R. (2018). Assessment of the perceived communication competence of senior undergraduate dental students: A study of the quality of data and orders written in prosthodontics' laboratory forms. *Journal of International Oral Health*.
- Alshiddi, I. F. (2014). Communication between dental office and dental laboratory: From paper-based to web-based. *Pakistan Oral & Dental Journal*, 34(3), 555–559.
- Berry, J., Nesbit, M., Saberi, S. & Petridis, H. (2014). Communication methods and production techniques in fixed prosthesis fabrication: A UK based survey. Part 1: Communication methods. *British Dental Journal*, 217(6), E13.

- Bhola, S., Hellyer, P. H. & Radford, D. R. (2018). The importance of communication in the construction of partial dentures. *British Dental Journal*, 224(11), 853–856.
- Davenport, J. C., Basker, R. M., Heath, J. R., Ralph, J. P., Glantz, P. O. & Hammond, P. (2000). Communication between the dentist and the dental technician. *British Dental Journal*.
- Dawson, P., Cranham, J. & Pace, S. (2008). Records for success: A step-by-step approach will ensure effective communication with the laboratory and great clinical outcomes. *Oral Health*, 98(4), 45–46, 49–50, 52.
- Goodlin, R. (2006). The essential tools: A guide to dentist-laboratory communication. *Oral Health*, 96(7), 3–54, 57–58, 61–63.
- Haj-Ali, R., AlQuran, F. & Adel, O. (2012). Dental laboratory communication regarding removable dental prosthesis design in the UAE. *ournal of Prosthodontics*.
- Juszczuk, A. S., Clark, R. K. F. & Radford, D. R. (2009). UK dental laboratory technicians' views on the efficacy and teaching of clinical-laboratory communication. *British Dental Journal*.
- Kilfeather, G. P., Lynch, C. D., Sloan, A. J. et al. (2010). Dentist-dental technician communication. *Dental Abstracts*, 55(5), 239–240.
- Krzyzostaniak, L. (2017). What digital dentistry means for implants? *Digital Esthetics*, 42(5), 12–14, 16–17.
- Lynch, C. D. & Allen, P. F. (2005). Quality of communication between dental practitioners and dental technicians for fixed prosthodontics in Ireland. *Journal of Oral Rehabilitation*.
- Pelligra, P. (2016). How to communicate with orthodontic laboratories. *Seminars in Orthodontics*.
- Perry, R. & Orfanidis, J. (2012). The power of communication. *Dental Products Report*, 46(2), 64–67.
- Rotsaert, M. (2007). Communication: The key to predictable restorations. *Oral Health*, 97(7), 12–14, 17–18, 20.
- Stewart, C. A. (2011). An audit of dental prescriptions between clinics and dental laboratories. *British Dental Journal*.
- Sui, L., Wu, X., Wu, S., Gao, P. & Li, R. (2014). The quality of written instructions for dental prostheses in China. *Journal of Prosthodontics*.
- Tulbah, H., AlHamdan, E., AlQahtani, A., AlShahrani, A. & AlShaye, M. (2017). Quality of communication between dentists and dental laboratory technicians for fixed prosthodontics in Riyadh, Saudi Arabia.
- Woodhead, C. M. (1996). Communication. *Journal of the Royal College of Surgeons of Edinburgh*, 41(4), 275–276.