Review Form 1.6

Journal Name:	**Journal of Pharmaceutical Research International**
Manuscript Number:	**Ms_JPRI_81015**
Title of the Manuscript:	**Effects of Light-Curing Techniques on Dental Resins - A Cross-Sectional Study**
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty'**, provided the manuscript is scientifically robust and technically sound.
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PART 1: Review Comments

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
	In the study entitled "Effects of Light-Curing Techniques on Dental Resins - A Cross-Sectional Study" the authors tried to assess commonly used dental resin composites, used as dental filling materials with the help of light induced polymerization reaction. Therefore, the purpose of this cross-sectional research was to compare the results of different light intensities on the hardness of different dental composites. Following light treatment units were used: • QTH also called Quartz Tungsten Halogen • LED also called Light Emitting Diodes This one-month cross-sectional *in vitro*-study was carried out in the Dental Materials Laboratory at King Saud University in Saudi Arabia. Using non-probability, convenient sampling, a single trained operator prepared 60 dental restorative composites (DRC) samples in steel molds with a diameter of 10mm and each mold was 2mm thick. During the polymerization of DRCs, the effects of light intensities, sorption and solubility, and microhardness were all measured. SPSS was used for statistical analysis and a p-value of <0.05 was declared striking. Since the inception of resin composites as dental restorative materials, polymerization shrinkage and the associated stress have been persistent issues. Polymerization shrinkage stress exerts a detrimental effect on marginal integrity and may be related to post-operative sensitivity, enamel cracking, marginal staining, and eventually secondary caries. Recognizing shrinkage stress as a significant disadvantage of all resin composites is a well-described effect in the literature and does not represent a new scientific question. Various solutions for its reduction have been investigated, including adjustments of material compositions and changes in light-curing protocols. Modified light-curing protocols that involved prolonging the initial polymerization phase (e.g. soft-start and pulse-delay protocols) were based on an assumption that slower curing would allow more viscous flow before the majority of shrinkage stress starts to build up. The reviewer misses a detailed literature discussion in this publication. A short pubmed analysis would be very helpful here: • J Dent. 2020 Oct; 101:103448. doi: 10.1016/j.jdent.2020.103448. Epub 2020 Aug 7 • Polymers (Basel). 2021 Feb 2;13(3):470. doi: 10.3390/polym13030470 • J Prosthodont Res. 2021 Feb 24;65(1):39-45. doi: 10.2186/jpr.JPOR_2019_330. Epub 2020 Oct 1 • Odontology. 2021 Apr;109(2):433-439. doi: 10.1007/s10266-020-00558-0. Epub 2020 Oct 31 • J Clin Exp Dent. 2020 Dec 1;12(12):e1117-e1123. doi: 10.4317/jced.57288. eCollection 2020 Dec • Clin Oral Investig. 2021 Mar;25(3):1127-1139. doi: 10.1007/s00784-020-03412-3. Epub 2020 Jul 11. All cited reviews are not included in the discussion of the results of this publication. Inconsistent evidence for the benefits of these modified protocols for reducing shrinkage stress stems from the fact that a slower polymerization does not necessarily delay the development of composite's elastic modulus. As the soft-start and pulse-delay polymerization protocols did not fulfill the expectations of mitigating shrinkage stress to a clinically useful extent, protocols employing high-intensity light and short curing times became attractive as part of the general trend of simplification of restorative procedures. Also, this part of already established findings in the literature are not included in the discussion of the results of this publication: • Dent. Mater. 34 (2018) 1531–1541, https://doi.org/10.1016/j. dental.2018.06.005 • Dent. Mater. 29 (2013) 605–617, https://doi.org/10.1016/j.dental.2013.02.003	

	• Dent. Mater. 36 (2020) 570–579, https://doi.org/10.1016/j. dental.2020.02.007 This led to radiant exitances of about 1000 mW/cm$_2$ becoming standard for light-curing of contemporary composites. The reviewer misses the consideration of these findings in the reviewed protocol of this publication. The idea of using a short curing time in conjunction with a high light intensity is not new. However, these curing units were poorly accepted by dental practitioners due to their high cost and inconvenient handling. High-intensity light-curing became a more viable option due to recent advancements in LED technology, which enabled the construction of lightweight battery-powered devices, which emit intense light in a precisely defined wavelength range. The reviewer misses the consideration of these findings in the "Discussion" of this publication	
Compulsory REVISION comments	The reviewer must state that the methodological equipment of the study is extremely poor compared to published papers, compare Pubmed Review**.**	
Minor REVISION comments	The reviewer misses a detailed literature discussion in this publication. A short pubmed analysis would be very helpful here.	
Optional/General comments	It was concluded from the study that when it came to increasing the surface micro hardness of DRC, LED light was found to be more effective than QTH light. These conclusions need to be revised again in light of the literature references cited by the reviewer.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)*
Are there ethical issues in this manuscript?	*(If yes, Kindly please write down the ethical issues here in details)*	

Reviewer Details:

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