Letter to the Editor

Studies Reporting Quality as a Major Challenges in Conducting Meta-Analysis: An Experience in Effectiveness of Fissure Sealant and Fluoride Varnish in Preventing Dental Caries

Systematic reviews aim to provide comprehensive and structured synthesis of existing knowledge in specific subjects; therefore its importance is well recognized. Because the strategy of performing the literature search, study selection, and synthesis of the results to report the findings follow defined principles [1, 2]. However, suboptimal or sometimes arbitrary reporting structure and disregarding the existent reporting guidelines (such as CONSORT for randomized trials) is one of the main challenges regarding the performing this kind of studies [3-5].

According to experiences gained from some systematic review studies in the field of dental caries prevention that were not subject to a meta-analysis [6-8], there were some weaknesses in conducting clinical studies making them inappropriate for inclusion in a meta-analysis design (e.g. not providing complete reports regarding the baseline status of dental health, not comprehensively evaluating the related indicators, etc.).

Most of the studies on the effectiveness of Fissure sealants and Fluoride therapies are performed with the aim to examine prevention rate and decay levels, respectively. And some of the studies examine the effect of both interventions, reporting dental caries indicators (DMFT, DMFS, dmft and dmfs). Some important findings of these studies indicate lack of assigning control and intervention groups in examining periodic outcomes of interventions in terms of caries indicators [9, 10], not reporting overall caries indicators for all of the study participants [11], and also not reporting sealant retention in different forms (total, partial, or complete loss) [12-15]. In order to make a final decision regarding the outcomes of each aforementioned intervention [16], we need to combine and synthesize results of similar indicators from several studies applying systematic review and meta-analysis designs. Despite the importance of optimal reporting of scientific findings, the reporting of results in some of the studies was incomplete and had weaknesses and challenges including not reporting all of defined indicators, not reporting the baseline status of the indicators, and lack of reporting the indicators within different time periods that have limited their inclusion in secondary studies. To solve this problem, complete and accurate use of the results reporting framework and taking account of follow-up periods, as well as reporting comprehensive indicators of dental caries and types of used materials is recommended. These items, which are developed using relevant experts’ points of view, are provided in tables 1 and 2. It’s expected that by applying this proposed framework, in addition to enhancing the quality of study results, performing meta-analysis studies that is an absolute necessity will be possible.

Table 1. A proposed framework for reporting indicators of Caries

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of Material</th>
<th>Study Design</th>
<th>Evaluation period</th>
<th>Exam protocol</th>
<th>Type of Index</th>
<th>Control/ baseline</th>
<th>Intervention</th>
<th>Sample size</th>
<th>confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author/ year</td>
<td>Contury parallel</td>
<td>Split-mouth</td>
<td>DMFT</td>
<td>dmft</td>
<td>DMFS</td>
<td>dmfs</td>
<td>Before</td>
<td>After</td>
<td>Before</td>
</tr>
</tbody>
</table>

Table 2 proposed framework for reporting indicators of sealant retention.

<table>
<thead>
<tr>
<th>Study</th>
<th>Type of Material</th>
<th>Study Design</th>
<th>Evaluation period</th>
<th>Exam protocol</th>
<th>Retention rate</th>
<th>Sample size</th>
<th>Sealants(n)</th>
<th>confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author/ year</td>
<td>Contury parallel</td>
<td>Split-mouth</td>
<td>Partial retention</td>
<td>Complete retention</td>
<td>Complete missing</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dariush Jafarzadeh, Ramin Rezapour, Teimour Abbasi, Jafar Sadegh Tabrizi, Mahmood Yousefi

1Iranian Center of Excellence in Health Management, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran
2Tabriz Health Services Management Research Center, Health Management and Safety Promotion Research Institute, Tabriz University of Medical Sciences, Tabriz, Iran
3faculty of dentistry, Tabriz University of Medical Sciences, Tabriz, Iran
4Iranian Center of Excellence in Health Management, Health Economics Department, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran.

coresspondence:

Mahmood Yousefi; Iranian Center of Excellence in Health Management, Health Economics Department, School of Management and Medical Informatics, Tabriz University of Medical Sciences, Tabriz, Iran.
Tel: +989121755785. E-mail: mahmoodyousefi80@yahoo.com

References