

# 4<sup>TH</sup> WORLD DENTAL CONGRESS

March 25-26, 2019 | Paris, France

## Challenges related to direct filling with composite resin restorations among Finnish dentists

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Dental caries remains as one of the main health problems globally. Over the past decades, resin composites have gradually replaced amalgam as the main direct filling material. However, there are several shortcomings with this technique, especially larger fillings in lower posterior teeth are challenging. Indirect restorations are used to overcome the challenges linked with direct restorations. Objectives: To evaluate the challenges related to direct filling technique with composite resin restorations among Finnish dentists. An electronic questionnaire was sent to 3,777 Finnish dentists. Respondent's age and the challenges with direct filling technique with composite resin restorations were inquired by multiple-choice questions. The number of replies was 760 and the response rate was 20.1%. The responses were grouped by age in five subgroups of ten years each, and the statistical differences between the age groups were analysed using Chi-square tests with the statistically significant level at  $p < 0.05$ . The main

shortcomings and challenges related to large (3 or more surfaces) direct composite fillings were poor survival rate (57.4%) and moisture sensitivity (49.9%) followed by polymerization shrinkage (38.8%), time-consuming technique (34.5%) and poor accuracy (16.3%). Poor survival rate ( $p < 0.001$ ) and poor accuracy ( $p < 0.001$ ) were reported more frequently by younger dentists than the older ones. Concerning the other challenges, no statistically significant differences were found between the age groups. Dentists reported shortcomings related to direct dental composite filling methods. The findings give support to the development of new indirect techniques for cost-effective restorative treatment. RAYO 3DToothFill is a novel technique utilizing digital imaging and 3D printing to fabricate tooth fillings and other dental restorations. The innovation is developed by a team of professors and experts from the University of Eastern Finland and University of Oulu, Finland.

### Biography

Pirkko-Liisa Tarvonen has a specialist degree in Dental Public Health from the University of Turku, Finland, and a PhD degree from the University of Eastern Finland. She acts as dental marketing director at Rayo 3D-Toothfill Ltd and is university lecturer at the University of Helsinki and at the University of Eastern Finland. As a voluntary project coordinator for ten years she has had a remarkable contribution in the support of primary dental care and dental education in the Democratic People's Republic Korea.

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