

Acceptability of fissure sealants from the child's perspective

A. G. Morgan,^{*1} A. K. Madahar² and C. Deery³

IN BRIEF

- Stresses the need to understand children's opinions about the acceptability of resin fissure sealant placement.
- Highlights that children who had fissure sealants on a previous occasion found them easier than those having them for the first time.
- Suggests most participants find having resin fissure sealants placed an overall acceptable procedure.

RESEARCH

Aim To seek children's opinions about the acceptability of resin fissure sealant placement. **Study design** Service evaluation using a child-centred questionnaire issued to a prospective sample of consecutive hospital patients. **Method** Questionnaires were issued to children, aged 3 to 16 years, immediately after resin fissure sealant placement in the Paediatric Dentistry Department in Sheffield. Participants used a three-point faces scale for positive, neutral and negative responses, arranged as a Likert scale with minimal text, to rate their treatment experiences and satisfaction with the dental visit. **Results** Two hundred questionnaires were returned. Overall, 96% (n = 191) recorded a positive or neutral response for the ease at which they coped with the procedure, with most children positive about having fissure sealants placed again (66%; n = 132). Further analysis demonstrated that children who had fissure sealants on a previous occasion found them easier than those having them for the first time (p < 0.05, chi-squared test). Almost half of all participants were ambivalent about the taste and feeling (46%; n = 92 and 55%; n = 110 respectively). The vast majority of children were satisfied with the explanations provided by their operator. **Conclusion** Most participants found having resin fissure sealants placed an overall acceptable procedure, with patient acceptance improving with increased treatment experience.

INTRODUCTION

In the UK, the prevalence of dental caries in permanent teeth of children and young people has reduced over the past three decades.¹ Despite the overall improving picture, a third of all 12-year-old children and nearly half of all 15-year-old children still experience dental caries in at least one permanent tooth.² Notably, it is the occlusal surfaces of molar teeth that are considered to be at greatest susceptibility.³ This improvement in oral health has not been uniformly distributed among the child population, with higher levels of decay strongly linked to social and economic deprivation.⁴ For these high caries risk individuals there is a strong evidence base to support the placement of fissure sealants (sealants) to prevent caries development

and their use had been recommended in a number of national clinical guidelines.⁵⁻⁷

In the most recent Child Dental Health Survey, 25% of 12-year-old children had sealants present.⁸ This would suggest that it is a dental treatment that many children do encounter. From the dental professionals' perspective sealants are generally considered to be a simple procedure, with paediatric dentists actually advocating their use as potentially helpful to improve children's confidence in the dental setting.⁹ In contrast, little is known about what young patients' think. Staman and co-workers¹⁰ investigated the discomfort associated with different dental procedures and found that children did not report post-operative pain following sealant placement, although only three patients were included in the study group.

Current UK health policies have made it a priority for providers to listen to the opinions of children and young people about treatment and service experiences, and provide them with age-appropriate information so they are involved in decision-making about their own care.¹¹ Traditionally, oral health research in paediatric dentistry has predominately sought the views of an adult, usually a parent, as a proxy for the young person.¹² Therefore, there is now a need for dental professionals to develop and use methods that facilitate the involvement of children.¹³

AIM

The aim of this study was to seek children's opinions about the acceptability of resin sealant placement.

METHOD

Study design

This was a questionnaire-based study. As there have been no validated questionnaires published to explore children's perspectives of different preventive dental interventions, the self-report questionnaire was adapted from non-validated instruments previously used in child-centred service evaluations of fluoride varnish applications and preformed metal crowns, which were conducted with similar patient groups.^{14,15} Each participant was asked to record their age, gender and whether they had previously had sealants placed. The questionnaire then comprised five closed items and one open-ended question relating to the patient's treatment experience, their satisfaction with the dental visit and to explore what they understood about the indications for sealant use. A three-point faces scale for positive, neutral and negative responses, arranged as a Likert scale with minimal text, was employed. Questionnaires were piloted for ease of comprehension and burden with 20 patients, but no amendments were necessary. The

¹Consultant in Paediatric Dentistry, Department of Paediatric Dentistry, Charles Clifford Dental Hospital, Wellesley Road, Sheffield, S10 2SZ; ²Speciality Registrar in Orthodontics, Royal London Dental Hospital, Whitechapel, London, E1 1BB; ³Professor/Honorary Consultant in Paediatric Dentistry, Department of Paediatric Dentistry, Charles Clifford Dental Hospital, Wellesley Road, Sheffield, S10 2SZ
*Correspondence to: Miss Annie Morgan
Email: Annie.Morgan@sth.nhs.uk

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Table 1 The different levels of clinicians who placed sealants in the study

Diploma in dental hygiene and dental therapy students
Final year dental undergraduate students
Dental therapist
Dental core trainees (year 2)
Speciality registrars in paediatric dentistry (pre and post-CCST)
Speciality dentists
Consultants in paediatric dentistry

study was deemed a service evaluation, and approval was therefore obtained from the Clinical Effectiveness Unit of Sheffield Teaching Hospitals NHS Foundation Trust.

Participants and setting

Between January and March 2012 questionnaires were issued prospectively to consecutive patients aged 3–16 years old, immediately after resin sealant placement, at the end of their dental visit. The participants were asked to return their responses into a sealed box at the exit of the treatment area. All children were seen in the Paediatric Dentistry Department in Sheffield. Children were eligible to participate if they had received a resin sealant on at least one primary or permanent molar tooth, but were excluded if they were non-English speaking and communication without the use of interpreting services was not possible. Participants were approached by a single investigator (AKM) using a prepared script that included a reassurance that their responses would be anonymous and that their parents/carers could provide assistance if they needed help with their questionnaire. Table 1 shows the variety of operators who placed the sealants during the course of the evaluation. Two sealants brands were used routinely: Heliobond and Helioseal (Ivoclar Vivadent Limited, Leicester, UK).

Data analysis

Data were entered into an electronic database (IBM Statistical Package for Social Sciences, version 20) with the use of simple descriptive analysis to present the quantitative data. A chi-squared test was used to determine whether there were any statistically significant differences in response according to gender, previous treatment experience, and age group (3–10 years and 11–16 years). For further statistical analysis positive and neutral responses were grouped together. The significance level was set at $p < 0.05$. A process of thematic content analysis was used to consider the additional comments made by the participants in the

Table 2 The children's responses to the five closed questionnaire items

Statement	Responses% (n)		
	Negative	Neutral	Positive
How easy was it to have plastic coatings put on your teeth?	4 (9)	23 (46)	73 (145)
What did you think about the taste of plastic coatings?	26 (52)	46 (92)	28 (56)
What did you think about the feel of plastic coatings?	9 (18)	55 (110)	36 (72)
Would it be okay with you to have plastic coatings put on your teeth again?	9 (18)	25 (50)	66 (132)
How well did your dentist explain to you about plastic coatings?	1 (1)	11 (23)	88 (176)

open question, without a predetermined framework.¹⁶ Anonymous quotes are used to illustrate the key themes.

RESULTS

In total 200 questionnaires were returned. All closed questions were fully completed, except for five respondents who failed to record if they had previous experience of sealant placement and were excluded from the related analysis. The mean age was 9 years (SD = 2.9; range = 3–16), with 67% (n = 134) of participants younger than 11 years old. There were a similar proportion of male (52%) and female (48%) respondents. Overall 55% (n = 107) of children had sealants placed before. Further analysis demonstrated no significant differences in the proportions of participants with or without previous sealant experience when compared to gender ($p = 0.590$, chi-squared test) or age group ($p = 0.234$, chi-squared test).

Table 2 shows the children's responses to the five closed questionnaire items. Overall, 96% (n = 191) recorded a positive or neutral response for the ease at which they coped with the procedure, with most positive about having fissure sealants placed again (66%; n = 132). Almost half of all participants were ambivalent about the taste of sealants (46%; n = 92), with similar proportions giving positive and negative responses (28%; n = 56 and 26%; n = 52 respectively). Most children were also ambivalent about the feeling of sealants (55%; n = 110). The vast majority (99%, n = 199) of participants were satisfied with the explanations provided by their operator. Further analysis found a statistically significant difference for children with or without previous sealants experience, with fewer children with past treatment experience finding it difficult ($p = 0.033$, chi-squared test) or disliking the taste ($p = 0.033$, chi-squared test) compared to children having their first sealants placed. There were no significant differences according to gender or age group.

Analysis of the additional free-text comments demonstrated that some

participants understood that the placement of sealants was beneficial, and would protect their teeth:

'They put it on because they are making sure you don't have holes in your teeth when you are older.' (Female, aged 13)

'For protection against decay.' (Male, aged 15)

'So sugar dosan't [doesn't] get stuck in my teeth.' (Male, aged 8)

Although, not all the children were clear of the reasons it was beneficial:

'So my teeth don't crumble.' (Female, aged 6)

'To help my teeth grow better.' (Male, aged 7)

Some children reported their sealants had been placed as a consequence of dental disease, instead of considering them a positive intervention:

'Because my teeth were bad.' (Female, aged 16)

'The dentist put plastic coatings on my teeth because there were pits and brown stains over my teeth.' (Male, aged 12)

Children also discussed the elements of the procedure they found a challenge, with drying of the tooth and the strong tastes associated with dental treatment mentioned:

'I didn't like the cotton wool pads because they were uncomfortable.' (Female, aged 9)

'I din't [didn't] like the dry tube that blew air.' (Male, aged 8)

'I didn't like the taste of the gloves. It was horrible.' (Male, aged 10).

However, positive aspects of their care and treatment experiences were also highlighted as important, with children valuing the friendliness shown to them by the dental team:

'The dentishon [dentist] were very friendly.' (Female, aged 9)

'He did a great job and was very friendly.' (Male, aged 12)

DISCUSSION

As many young patients have sealants placed during childhood it is surprising that children have not been asked to give their thoughts and views on them before. The key finding to emerge from this service evaluation was that most participants found having resin sealants placed an overall

acceptable procedure and would be willing to have them again. Children who had sealants placed on a previous occasion found them easier than those having them for the first time, which suggests it is a procedure where patient acceptance improves with increased treatment experience. In contrast, invasive dental procedures that require local anaesthetic have acceptance levels that fall over successive treatment visits.¹⁷ The findings also correspond with the notion held by paediatric dentists that fissure-sealants can also be useful to improve children's confidence within the dental setting.⁹

Although the quantitative and qualitative findings suggest an overall positive experience, individual feedback showed that some participants found certain aspects of the treatment more challenging. Notably, the strong tastes associated with different dental equipment and materials. Unpleasant tastes have been shown to be a significant factor in non-compliance with prescribed medications, including mouth-rinses.^{18,19} However, the importance of the palatability of dental products on a patient's ability to tolerate a dental procedure and its influence on the clinical outcome is not known and warrants further investigation. Although taste was highlighted as a consideration by individuals, the majority of participants found it acceptable. An explanation for this unexpected finding is that during the study clinicians were asked simply to follow normal treatment protocols for sealant placement, which included for some participants the local practice of placing a smear of toothpaste over a recently placed sealant. Undeniably, this is a potential confounding factor, as the toothpaste would likely mask any tastes associated with sealants. However, the variations in sealant techniques employed by the different clinicians did not seem to influence patient acceptance overall.

Although the high levels of acceptance for sealants is encouraging, this project has a

number of limitations to the generalisability of the results that warrants further consideration. Firstly, this was a hospital-based study where the included participants had been referred by a primary care dentist for treatment in a specialist paediatric dentistry environment. As a result the participants may have had different expectations of treatment than children seen in primary care or private practice. Interestingly, children are often referred to hospital paediatric dentistry services because they are dentally anxious.²⁰ While no measure of dental anxiety was recorded during this investigation, it is possible that the participants in the study would actually have found sealant placement a greater challenge than perhaps children seen routinely in primary dental care. Admittedly, participants where the procedure was abandoned completely were not asked to complete a questionnaire and it is likely that those young patients will have provided a different and valuable insight. A further complicating factor is that the participants were treated by operators with a range of paediatric dentistry experience, including dental and hygiene-therapy students. It is possible that students, by virtue of their inexperience, would be slower at completing a sealant procedure than a qualified dental professional, with negative consequences for overall patient acceptance. However, students were given proactive clinical support by senior clinical supervisors if difficulties arose, which might have mitigated any impact.

CONCLUSION

Most participants found having resin fissure sealants placed an overall acceptable procedure, with patient acceptance improving with increased treatment experience.

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