# Self-Perception of Enamel Opacities among Irish 12-Year-Olds


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## Background

The FACCT (Fluoride And Caring for Children's Teeth) study is a 5-year research programme to evaluate the impact and outcome of the change in policy on water fluoridation and the use of fluoride toothpaste on dental caries and enamel fluorosis in Irish children with and without lifetime exposure to water fluoridation.

Previous research has indicated a difference of opinion between dentists, parents and children regarding what might be considered aesthetically objectionable enamel opacities [1-3]. In addition, differing social norms and beliefs among different study populations mean results gathered in other countries might not be applicable to an Irish context [4]. Thus we required data concerning the aesthetic acceptability of enamel opacities from our own study participants and their parents to inform our interpretation of their clinical data.

**Objective:** To investigate the use of a photographic instrument with questionnaire developed in the UK by Davies and colleagues [5] to measure the self-perception of enamel opacities among schoolchildren in Ireland.

## Methods

2378 sixth class schoolchildren (mean age 12.3 years; equal proportions by gender) drawn from schools across Dublin, Cork and Kerry completed Davies and colleagues [5] self-perception instrument for the presence and impact of enamel opacities. The instrument comprises questions about the presence of white marks on participants' teeth and, if present, whether the marks bother them. Participants also select a group of photographs that they perceive as looking most like their own teeth, from a sheet showing three groups of anterior teeth with varying types of opacities.

Immediately following this, a clinical dental examination including assessments of Dean's Index of dental fluorosis, Developmental Defects of Enamel (DDE) and dental caries was conducted by trained and calibrated dentists.

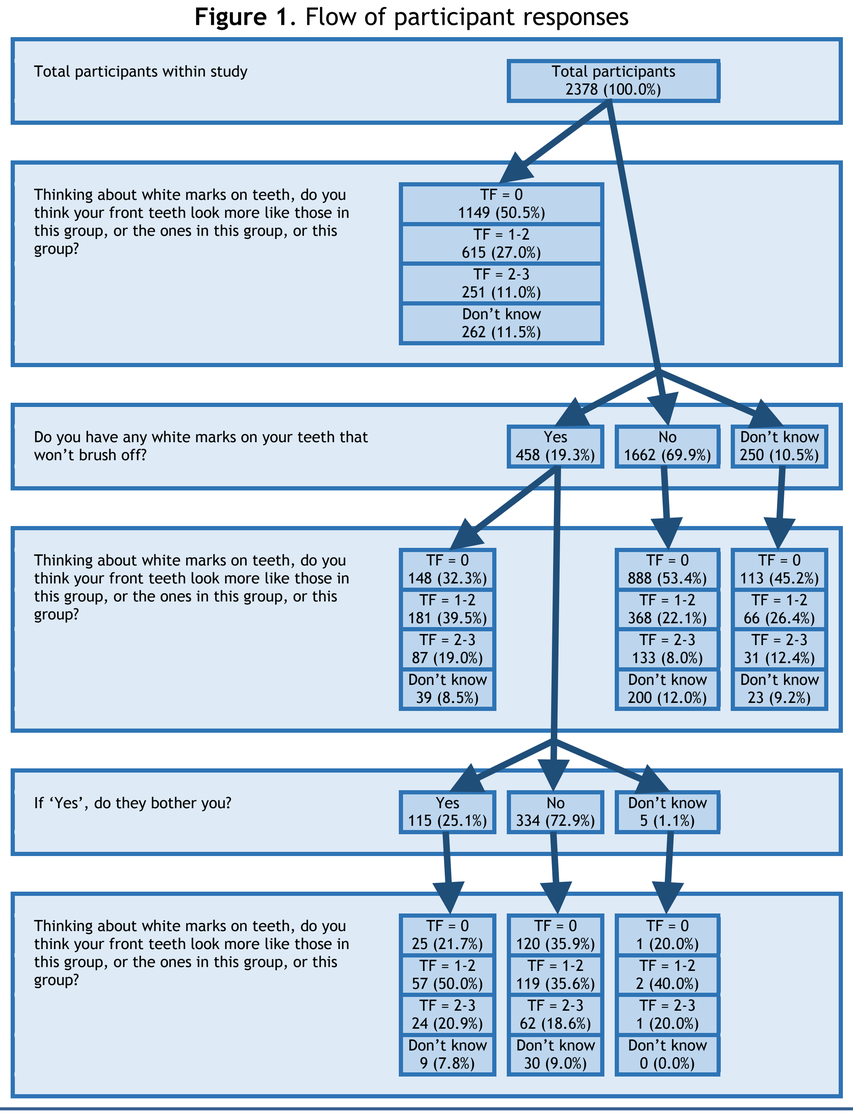
Data were captured directly into an electronic database and exported into SPSS for analysis.

## Results

Results are reported for all participants who completed the photographic instrument with questionnaire. The instrument was feasible to use, with one or more missing responses from <5% of participants.

As figure 1 shows, the proportion of participants who self-identified as having white marks on their front teeth that don't brush off was 19.3%; of these, 25.1% (115 individuals) reported that the white marks bothered them.

**Figure 1.** Flow of participant responses




## Results

In the clinical examination conducted concurrently, the dentists identified 27% of participants as having enamel fluorosis (grades questionable to moderate) using Dean's Index (see figure 2 for illustrations). Table 1 illustrates the difference of opinion between participants and dentists and the difference of opinion among participants in relation to the presence of white marks on participants' teeth classified using Dean's Index. Of participants who were classified as normal by the examiner, 15.7% reported that they perceived white marks on their own front teeth. Exactly half of participants classified as having fluorosis (grades very mild to moderate) reported that they did not perceive white marks on their own front teeth.

**Table 1.** Participants' responses to the question "Do you have any white marks on your front teeth that won't brush off?" and Dean's Index score

| | Do you have any white marks on your front teeth that won't brush off? | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Yes | | No | | Don't know | | | |
| Dean's Index | n | % | n | % | n | % | n | % |
| Normal | 255 | 15.7 | 1191 | 73.4 | 176 | 10.9 | 1622 | 100.0 |
| Questionable | 105 | 23.8 | 291 | 65.8 | 46 | 10.4 | 442 | 100.0 |
| Very mild | 69 | 43.7 | 76 | 48.1 | 13 | 8.2 | 158 | 100.0 |
| Mild | 14 | 30.4 | 26 | 56.5 | 6 | | 46 | 100.0 |
| Moderate | 2 | | 3 | | 1 | | 6 | |

Note: percentages are not calculated for cells with less than 10 participants.

**Figure 2.** Dean's Index of Dental Fluorosis


The dentists also identified 52% of participants as having an opacity using the Developmental Defects of Enamel (DDE) Index (including 21% of participants with one or more demarcated opacities and 46% with one or more diffuse opacities). Table 2 illustrates the difference of opinion between participants and dentists and the difference of opinion among participants in relation to the presence of white marks on participants' teeth classified using the DDE. More than 60% of participants classified as having a demarcated or diffuse opacity on one or more front teeth did not perceive its presence.

**Table 2.** Participants' responses to the question "Do you have any white marks on your front teeth that won't brush off?" and DDE score

| | Do you have any white marks on your front teeth that won't brush off? | | | | | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Yes | | No | | Don't know | | | |
| DDE | n | % | n | % | n | % | n | % |
| Demarcated | 144 | 34.5 | 219 | 52.5 | 54 | 12.9 | 417 | 100.0 |
| Diffuse | 268 | 27.0 | 634 | 64.0 | 89 | 9.0 | 991 | 100.0 |
| Hypoplastic | 4 | | 8 | | 3 | | 15 | 100.0 |
| Demarcated & Diffuse | 33 | 39.3 | 38 | 45.2 | 13 | 15.5 | 84 | 100.0 |
| Demarcated & Hypoplastic | 4 | | 6 | | | | 10 | 100.0 |
| Diffuse & Hypoplastic | 5 | | 8 | | | | 13 | 100.0 |
| Demarcated, Diffuse & Hypoplastic | 1 | | | | | | 1 | |
| Any DDE | 351 | 28.1 | 765 (61.3%) | | 131 (10.5%) | | 1247 | 100.0 |

Note: subjects may have more than one type of opacity, thus total percentages will not sum to 100 and 'Any DDE' will not be the sum of all other categories; percentages are not calculated for cells with less than 10 participants.

## Conclusions

The instrument under investigation was a suitable method for collecting information on self-perceived enamel opacities in sixth class schoolchildren.

Similar to previous research we identified a difference of opinion between participants and dentists in relation to white marks on front teeth.

Further research will be carried out to explore the association between the self-perceived enamel opacities, parental perceptions and opacities recorded in the dental examination, including an assessment of the level of analogy with respect to opacities of aesthetic concern to participants.

## References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