# Knowledge, management and perceived barriers to treatment of molar incisor hypomineralisation in general dental practitioners and dental nurses in Malaysia

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**Abstract**

*Background:* Molar incisor hypomineralisation (MIH) is a global dental problem, yet there is little known about the knowledge of the general dental practitioners (GDPs) and dental nurses (DNs) regarding this defect in South East Asia.

*Aims:* To assess and compare the knowledge of the GDPs and DNs in Malaysia regarding the frequency of occurrence of MIH within their practice, its diagnosis, putative aetiological factors and management.

*Study design and methods:* A questionnaire was distributed to GDPs and DNs during a nationwide dental conference in Malaka, Malaysia and asked to answer questions about demographic variables, knowledge, attitudes and practices in the management of MIH.

*Statistics:* Descriptive statistics and bivariance analysis were performed. A 5% level of statistical significance was applied for the analyses.

*Results:* A response rate of 58.2% (131/ 225) was obtained. Most respondents were aware of MIH and encountered it in their practice (GDPs = 82.5%, DNs = 82.4%). The condition was observed by respondents less in primary molars compared to first permanent molars. Full agreement between GDPs and DNs was not determined concerning the aetiological factors and management of MIH. Glass ionomer cements were the most popular material used in treating MIH. Most respondents (GDPs = 93%, DNs = 76.5%) indicated that they had not received sufficient information about MIH and were willing to have clinical training in the diagnosis and therapeutic modalities of MIH.

*Conclusions:* MIH is identified and encountered by most respondents. Agreement was not determined between GDPs and DNs concerning MIH frequency of occurrence within their practice, its diagnosis, aetiological factors and management.

**Key words:** Molar incisor hypomineralisation, general dental practitioner, dental nurse, Malaysia, opinions

## Introduction

The term Molar-Incisor Hypomineralisation (MIH) was introduced to describe demarcated, qualitative defects of enamel of systemic origin, affecting one or more first permanent molars with or without involvement of incisor teeth. The defects can also affect second primary molar with similar clinical features as in permanent molars (Weerheijm et al. 2003; Elfrink et al. 2008; Ghanim et al. 2013a).

Despite efforts to determine the causes of enamel hypomineralisation the aetiological factors have not been identified for either the primary or permanent dentitions, however environmental factors including those of systemic nature such as acute or chronic illnesses during the last gestational trimester and first three years of childhood have been proposed as contributing to or causing MIH. In addition, genetic factors have also been implicated in the pathogenesis of MIH (Lygidakis et al. 2008; Alaluusua, 2010; Ghanim et al. 2013b).

Clinically, MIH may present as discrete opaque lesions, ranging from white to yellow-brown distinct from the more diffuse linear opacities usually associated with fluorosis and may be associated with post-eruptive enamel loss making it potentially difficult to distinguish from enamel hypoplasia. The distribution of the lesions is often asymmetric, commonly with marked variation in severity within an individual, that is, the enamel of one molar can be severely affected while the enamel of the contra-lateral molar is clinically unaffected or has only minor defects (Weerheijm et al. 2003).

MIH can influence child's oral health status such as rapid wear and enamel breakdown, increased dental caries. Initially poor success of restorations using improper materials was considered a problem, however more recently restorative success rates have improved; however increased severity of the lesion worsens the outcome, and sometimes extraction of the affected teeth is required (Leppäniemi et al. 2005; Kotsanos et al. 2005; Lygidakis, 2010; Lygidakis et al. 2010).

In recent decades, although MIH has become a popular topic for dental research it is difficult to determine whether the condition presents any concern for dental care providers and whether, as reported anecdotally, it is confused with dental fluorosis (Crombie et al. 2008). The understanding and detection of MIH is linked to its recognition by clinicians. To date, the available investigations related to dental practitioners' awareness were restricted to European, Australian/New Zealand (ANZ), Middle East and South American countries. The majority of clinicians from these countries embraced the fact that hypomineralised teeth constitute a severe clinical problem and experienced difficulties in deciding which were the best treatment options (Weerheijm and Mejàre 2003; Crombie et al. 2008; Biondi and Cortese 2009; Ghanim et al. 2011). Information on whether MIH is encountered by South East Asia dental practitioners, including Malaysia and whether the condition is experienced as a clinical problem are lacking.

Presently, the small number of paediatric dentists in Malaysia cannot meet the demand of the child population and most of their dental care is rendered by general dental practitioners and dental nurses. Dental nurses are clinical allied health personnel in Malaysia. With a shortage of qualified dental professionals to meet the needs of 50% of the population under 18 with

'appalling' dental conditions, they were introduced in 1948 based on the New Zealand dental nurse model. Their employment is restricted to the government sector where they function under the supervision of a public sector dentist. Dental nurses complement the dentists; their services have greatly enhanced the coverage of school children in the country. Currently, school dental nurses provide dental care such as prophylaxis, sealants, restorations (using composite, glass ionomer cements and amalgam), simple extractions with local anesthesia to 96% of elementary and 67% of secondary school children (Malaysia Annual Report, 2004; Oral Health Division, 2005). Therefore, the role of general dental practitioners and dental nurses in the diagnosis and treatment of children with MIH should be identified. Undoubtedly, such research about this global problem is important because the views of dental practitioners and dental nurses in Malaysia would help the local health authorities in tailoring appropriate oral health services for Malaysian children. Furthermore, this is the first study investigating dental nurses' awareness about MIH. The purpose of the present survey is to evaluate and compare the knowledge of general dental practitioners (GDPs) and dental nurses (DNs) practicing in Malaysia regarding the frequency of occurrence of MIH within their practice, its diagnosis, possible aetiological factors and its treatment modalities.

## Methods

### Participants

The investigated population was GDPs and DNs attending the nationwide dental conference in Malaka, Malaysia (Joint MDASZ - Melaka Manipal Medical College 4$^{th}$ Dental Conference and Trade Exhibition), on 5$^{th}$ -7$^{th}$ October 2012 and there were 225 participants. All of the attended GDPs and dental nurses who provide oral health care in Malaysia were included in the study,

whilst those who practice dentistry outside Malaysia or were recognised as dental specialists were excluded from the study. Approval for this study was obtained from the Human Ethics Committee at Universiti Teknologi MARA and the conference organiser.

A semi-structured questionnaire (modified from Ghanim et al. 2011) was used to assess GDPs and DNs knowledge regarding MIH. The questionnaire was validated in terms of applicability and repeatability by performing a pilot study amongst a group of practicing dentists and dental nurses working in the Universiti Teknologi MARA (UiTM) and private dental clinics. Through discussions with the participants and assessment of the results of the pilot study, the questionnaire was revised by omitting some questions and adding some new alternative responses to provide a wider range of possible answers. During the conference period, the questionnaire with a cover letter describing the study aims was self-administered to all of the attendants. An envelope was provided to facilitate the return process of the questionnaires. The participation was anonymous and voluntary and the participants were asked to fill in the questionnaire and return it before the end of the conference.

Survey instruments

The questionnaire was divided into five sections. The **first section** collected background, demographic and practice information including questions on age, gender, type of practice, number of years in clinical practice, place of graduation and number of hours practicing per week. The **second section** addressed participants' knowledge about MIH frequency of occurrence in primary and permanent teeth are noticed in their practice and the severity of the defect in terms of its clinical presentation. The **third section** addressed participants' attitudes

and practices in the management of MIH. The participants were asked if they felt comfortable managing care for children with MIH or preferred to refer them to paediatric dentist. A question regarding type of materials used for treating MIH-affected teeth was also included. The **fourth section** assessed participants' knowledge about possible aetiological factors related to MIH where a variety of factors were given to the participants to select the appropriate one. The **final section** questioned participants' attitude towards receiving education and training for MIH-management. Rrespondents' confidence in diagnosing MIH was scored on a five-point scale ranging from 1 (very confident), 2 (confident), 3 (neutral- neither confident nor unconfident), 4 (unconfident), 5 (very unconfident). The questionnaire included clinical photographs as used in European, ANZ and Iraqi surveys (Weerheijim and Mejàre 2003; Crombie et al. 2008; Ghanim et al. 2011).

Data Analysis

Data were entered into SPSS version 18.0 (SPSS Inc., Chicago, IL, USA). Analyses included basic descriptive statistics [frequencies and means ± Standard Deviation (SD)] and bivariate analyses (Chi Square) were performed. Chi Square was used for nominal or ordinal variables. An alpha level of statistically significance was set at 0.05.

## Results

Among the 225 potential respondents, 172 responses were received (GDPs = 131/174, DNs = 41/46). Of these, 41 respondents were excluded because they returned empty questionnaires or incomplete answers (n = 26) or they were dental specialists and were not practicing in Malaysia

(n = 15). Therefore, 131 participants (GDPs = 97, DNs = 34) were included with a response rate of 58.2%.

Demographic and characteristics of responding GDPs and DNs appear in **Table 1**. The mean age of respondents was GDPs = 36.34 ± 10.69 years and DNs = 31.13 ± 7.25 years. The majority (GDPs = 61.85%, DNs = 100%) were graduates from local dental schools. The GDPs and DNs had been practicing for an average of 10.94 ± 10.31 and 7.64 ± 6.09 years, respectively.

Most respondents (GDPs = 81.4%, DNs = 76.5%) had heard about MIH. Similarly, the vast majority (GDPs = 82.5%, DNs = 82.4%) indicated that they encounter MIH in their practice. Approximately half of the respondents (GPDs = 57.7%, DNs = 44.1%) stated that they have noticed hypomineralised defects in teeth other than first permanent molar and incisors; these were permanent canines, second molars and second primary molars with no significant difference was found between the respondents with this regards. However, a statistically significant difference existed between how GDPs (40.2%) and DNs (20.5%) noticed this defect in premolars ($\chi^2$ = 34.41, p = 0.001) (figure not shown). In terms of MIH frequency of occurrence, more than half of the GDPs predicted a similar observation of MIH in both primary and permanent teeth in their practice (≤ 10%). Fewer than half of the DNs reported a similar frequency in the primary teeth (≤ 10%). For permanent teeth (35%) of DNs reported a higher frequency of MIH (10 - 20%) compared to GDPs (7.5%). Statistically significant differences existed between GDPs and DNs regarding perceived frequency of MIH occurrence in both primary and permanent dentitions [($\chi^2$ = 29.56, p = 0.002); ($\chi^2$ = 14.63, p = 0.033), respectively].

The majority agreed that parents can play a role in MIH management and early examinations are important in treating MIH (GDPs = 97.1%, DNs = 92.8%; GDPs = 90.7%, DNs = 100% respectively). Moreover, just over half (57.1%) of the GPDs and most of the DNs (88.2%) indicated they refer children with MIH to paediatric dentists for treatment. Other views on MIH are presented in **Table 2**.

The respondents have suggested a variety of views with regard to the aetiological factors (**Table 3**). The majority of the GDPs indicated that fluoride ingestion and medications taken during pregnancy are the main causes of MIH (71.1%, 64.9%, respectively). On the other hand, most of the DNs postulated that genetic components and medications taken during pregnancy or early childhood are the main predisposing factors (60%, each). There were significant differences between GDPs and DNs in terms of chronic conditions affecting mother during pregnancy and fluoride ingestion ($\chi^2$ = 5.90, p = 0.01, $\chi^2$ = 9.73, p = 0.002, respectively).

The type of dental materials and primary intervention used by the participants in treating teeth with MIH are presented in **Table 4**. Glass ionomer cement (GIC) was used widely and composite resin was also popular. Resin modified GIC, compomer, amalgam and prefabricated metal crowns were not used by the majority of the respondents. More than half of the participants (GDPs = 58.8%, DNs = 70.6%) indicated that they used fluoride varnish as first preference in the initial management intervention compared to sealants and tooth mousse. There were no significant differences between GDPs and DNs with regards to type of materials and initial management intervention used in treating children with MIH.

In terms of questions regarding barriers for treating children with MIH, for GDPs, the most common barriers were child's behaviour (95.9%), followed by insufficient training on how to treat MIH (70.1%), difficulty in achieving local anesthesia (60.8%) and dental treatment requires long time to be accomplished (46.4%). Whilst for DNs, insufficient training (100%) was the most common barrier, followed by child's behaviour (97.1%), prolonged dental treatment (88.2%) and difficulty in achieving local anesthesia (67.6%). There were highly significant differences between GDPs and DNs in relation to "dental treatment needs long time to be accomplished" and "insufficient training barriers" ($\chi^2$ = 18.01; p = 0.001; $\chi^2$ = 13.05; p = 0.001 respectively) (figure not shown).

Most respondents (GDPs = 93%, DNs = 76.5%) stated that they did not obtain sufficient information on MIH with a high significant difference between the two groups ($\chi^2$ = 7.93, p = 0.005). The majority of respondents (GDPs = 96.9%, DNs = 88.2%) requested a clinical training program on MIH particularly in fields related to its diagnosis and treatment modalities (GDPs = 62.9%; 88.7%; DNs = 52.9%; 79.4%, respectively).

Furthermore, GDPs indicated that they received their MIH information from many sources, including journals and the Internet (28.9% each), continuing education development programs and books (27.8% each) and brochures (7.2%). Whereas DNs stated that they gained their information from Internet (38.2%), journals (32.4%), brochures (23.5%) and continuing education development programs (17.6%). None of DNs used books as source for their

knowledge. A Statistically significant difference was found between GDPs and DNs in terms of source of MIH knowledge ($\chi^2 = 7.39$, $p = 0.031$).

**Discussion**

This study surveyed the knowledge of GDPs and DNs in Malaysia about MIH. Little is known about GDPs' and none about DNs' views on MIH perceived frequency and its diagnosis, aetiology and management. Understanding GDPs' knowledge, attitudes and practice habits on this topic is essential to plan strategies to improve oral health services and effective health promotion activities for children. To our knowledge, this is the first local study of its kind in Malaysia.

In the present study, the majority of the participants had encountered patients with MIH, consistent with the results of previous studies (Crombie et al. 2008; Weerheijim and Mejàre 2003; Ghanim et al. 2011). Yellow/ brown demarcations were most frequently observed by the respondents, consistent with previous findings, possibly due to this type of lesion being least easily confused with alternative diagnosis such as fluorosis and carious white spot lesions (Ghanim et al. 2011).

There was a noticeable variation between GDPs and DNs in estimating how often MIH is seen in their practice. Furthermore in this study almost half of the DNs care for children compared to the GDPs who mainly treat adult patients (47.1% vs 11.3%, respectively). Therefore it is not surprising for this group to perceive a higher frequency of occurrence for MIH in their clinical practice.

High levels of interest in training regarding therapeutic modalities for MIH-affected teeth were reported. This reflects the necessity to establish effective intervention programs which is in agreement with earlier findings (Crombie et al. 2008, Ghanim et al. 2011). In contrast, training in diagnosis was next most popular. Although the participants showed a high rate of diagnostic confidence their request for further training in the diagnosis may reflect their high interest to know more about this condition which can help them to decide on the best treatment options.

Comparable to the ANZ findings, in the present study, the most popular materials used by respondents were GIC and composites (Crombie et al. 2008). Additionally only a few respondents utilized prefabricated crowns in management of MIH, which is consistent with other studies which have found prefabricated crowns are offered more commonly by pediatrics dentists and their use is rare amongst GDPs and in the public sector (McKnight-Hanes et al. 1999; Tran and Messer 2003).

The exact aetiological mechanism/s of MIH and why there is markedly asymmetric presentation in individuals remain unknown (Alaluusua, 2010; Lygidakis et al. 2010). The majority of the participants have selected more than one possible factor which supports the common belief that MIH defects have a multifactorial pathogenesis (Chawla et al. 2008; Lygidakis et al. 2008; Ghanim et al. 2013b). Most respondents believed that MIH is caused by fluoride ingestion, which may indicate there is still confusion in the dental community regarding differentiation of fluorosis and other developmental enamel defects. A vast number of respondents also implicated medical conditions to be involved in the aetiology, which is supported by several studies

reporting a higher incidence of developmental defects in medically compromised population (Al-Sarheed et al. 2000; Rasmusson and Erikson 2001; Wierink et al. 2007). Additionally, more than half of the respondents implicated genetic factors in the pathogenesis of MIH which supported earlier suggestions of the necessity of research into genetic susceptibility (Math-Muju and Wright 2006; Alaluusua, 2010).

The present study identified reasons why the responding participants may not be treating children with MIH. The most common barrier was related to insufficient training, which emphasis to use better dental resources which help improving their clinical experience and outcomes. Another common barrier was the child's behaviour (child's fear of dental chair and drilling), which suggests that the clinicians may feel uncomfortable managing behaviour in children. This might be due to sensitivity of teeth and inadequate control of pain. Hence the management of children with MIH should be integrated into undergraduate curriculum or lectures in paediatric dentistry at all universities.

Lack of information or unfamiliarity with current issues about MIH makes it difficult for GDPs and DNs to assume an active role in managing children with MIH. The majority of the respondents thought that they had not received enough current information about MIH and requested additional information in this field. Dental journals and internet were the most popular sources of information for participants responding to our survey. Dental information in the internet can be very handy and good source to gain and update latest MIH knowledge for dental clinicians and can represent part of a training program.

The information provided has to be considered within the limitations of the study design. The most obvious shortcoming is the relatively low response rate (58.2%), similar to the ANZ study. Nonetheless, progress has been made through the present study in providing a basis for future research on larger groups of subjects. A broader national survey involving a wide spectrum of dental care providers in Malaysia is essential to the planning, implementation and evaluation of public dental health practice. Given the nature of the present study design it is not possible to evaluate participants' level of accuracy for their diagnosis of MIH particularly in the presence of other tooth abnormalities such as amelogenesis imperfecta, enamel hypoplasia or dental fluorosis which are akin to MIH and can be readily misdiagnosed as MIH. This in part explains why some respondents requested more training in the diagnosis of the condition. Hence, it could be argued that if clinical training programs are developed, oral health professionals and dentists may become more acquainted with the identification of MIH defects and treatment strategies. Additionally, concerning the self-reported aspects of the study, there is a possibility that social desirability biases may have led respondents to over or under report knowledge, attitude and practice habits. Nevertheless, the present study provides a reference database for broader surveys in Asia.

**Conclusions:**

MIH is a condition identified and encountered by Malaysian GDPs and DNs in their practice with considerable variation in their views concerning frequency of occurrence, diagnosis, aetiological factors and management of MIH. Yellow/ brown demarcated opacities were the most frequently noticed clinical presentation of MIH. Also most respondents in this study indicated that medications taken during pregnancy and fluoride ingestion were the main potential

causes of MIH. Composite resin and GICs were the most popular materials used in restoring teeth with MIH. The majority indicated that they did not receive sufficient information about MIH and requested clinical training in MIH diagnosis and treatment strategies. An epidemiological survey to provide baseline data of MIH prevalence for the Malaysian population is recommended.

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Table 1: Demographic characteristics of GDPs and DNs

| **Characteristics** | DNs<br>N (%) | GDPs<br>N (%) |
|---|---|---|
| **Gender** | | |
| Male | 0 | 22(22.7) |
| Female | 34(100) | 75(77.3) |
| **Age** | | |
| ≤ 30 | 20(62.5) | 35(36.1) |
| 31 – 40 | 9(28.1) | 35(36.1) |
| 41 – 50 | 1(3.12) | 11(11.3) |
| ≥ 51 | 2(6.2) | 16(16.5) |
| **Years in Practice** | | |
| ≤ 5 | 17(60.7) | 41(42.2) |
| 6 -10 | 2(7.1) | 21(21.6) |
| 11 – 20 | 8(28.5) | 19(19.7) |
| 21 – 30 | 1(3.5) | 10(10.3) |
| ≥ 31 | 0 | 6(6.1) |
| **Type of practice** | | |
| Private | | |
| Private clinic | 0 | 17(17.5) |
| Government | | |
| Community-based clinic | 11(32.4) | 30(30.9) |
| Dental-health clinic | 18(52.9) | 24(24.7) |
| Hospital-based clinic | 2(5.9) | 10(10.3) |
| University clinic | 3(8.8) | 16(16.5) |
| **Location of Main Practice** | | |
| Urban | 26(76.5) | 85(87.6) |
| Rural | 7(20.6) | 12(12.4) |
| **Practice limited to children** | | |
| Yes | 16(47.1) | 10(10.3) |
| No | 18(52.9) | 87(89.7) |

GDPs, general dental practitioners; DNs, dental nurses

Table 2: Knowledge and views of GDPs and DNs about MIH.

| Variables | DNs N (%) | GDPs N (%) | $\chi^2$ | P value |
|---|---|---|---|---|
| Do you think MIH defects represent a clinical problem that could come next to dental caries? | 34(100) | 83(85.6) | 5.494 | 0.019* |
| How severe is this problem do you think in your community? | | | | |
| Mild | 8(23.5) | 23(23.7) | 5.129 | 0.163 |
| Moderate | 23(67.6) | 52(53.6) | | |
| Severe | 3(8.8) | 10(10.3) | | |
| Not sure | 0 | 12(12.4) | | |
| How often do you see MIH in your clinical practice? | | | | |
| Weekly basis | 8(23.5) | 8(8.2) | 6.013 | 0.049* |
| Monthly basis | 13(38.2) | 37(38.1) | | |
| Yearly basis | 13(38.2) | 52(53.6) | | |
| What is/are the most frequent type/s of defect seen in your practice? | | | | |
| White demarcation | 14(41.2) | 48(49.5) | 2.553 | 0.279 |
| Yellow/brown demarcation | 20(58.8) | 45(46.4) | | |
| Post eruptive enamel breakdown | 0 | 4(4.1) | | |
| Do you think the incidence of MIH is increasing during the period of your practice? | | | | |
| Yes | 9(26.5) | 7(7.2) | 9.717 | 0.008* |
| No | 1(2.9) | 10(10.3) | | |
| Not sure | 24(70.6) | 80(82.5) | | |
| What is the perceived frequency of MIH occurrence in permanent teeth in your practice? | | | | |
| ≤10 | 6(30.0) | 42(52.5) | 14.63 | 0.033* |
| 11-20 | 7(35.0) | 16(7.5) | | |
| 21-30 | 1(5.0) | 9(11.2) | | |
| ≥31 | 6(30.0) | 13(16.2) | | |
| What is the perceived frequency of MIH occurrence in primary molars in your practice? | | | | |
| ≤10 | 9(40.9) | 46(56.7) | 29.56 | 0.002* |
| 11-20 | 5(22.7) | 16(19.7) | | |
| 21-30 | 1(4.5) | 7(8.6) | | |
| ≥31 | 7(31.8) | 12(14.8) | | |
| How do you think the frequency of this defect in other teeth compared to FPM? | | | | |
| More frequent | 2(5.9) | 14(14.4) | 2.266 | 0.322 |
| Less frequent | 29(85.3) | 71(73.2) | | |
| Same as for FPM | 3(8.8) | 12(12.4) | | |
| How confidant do you feel when diagnose MIH? | | | | |
| Unconfident | 9(26.5) | 44(45.4) | 10.121 | 0.006* |
| Confident | 21(61.8) | 52(53.6) | | |
| Very confident | 4(11.8) | 1(1.0) | | |
| Do you think parents can play | 33(97.1) | 90(92.8) | 0.803 | 0.370 |

| | | | | |
|---|---|---|---|---|
| a role in MIH management? | | | | |
| Do you feel comfortable providing management care for children with MIH? | 32(94.1) | 72(74.2) | 6.087 | 0.014* |
| Would you refer a child who has sign of MIH to specialist for treatment? | 30(88.2) | 40(57.1) | 22.349 | 0.001* |

N & % in the table represent those of YES answers only.

* Statistical significant difference between GDPs and DNs

GDPs, general dental practitioners; DNs, dental nurses; MIH, molar-incisor hypomineralisation; FPM, first permanent molar

Table 3: Knowledge of GDPS and DNs about MIH-possible aetiological factors.

| Putative aetiological factors | DNs N (%) | GDPs N (%) | $\chi^2$ | P value |
|---|---|---|---|---|
| **Genetic factors** | 19(55.9) | 56(57.7) | 0.035 | 0.851 |
| **Environmental contaminants** | 14(41.2) | 49(50.5) | 0.880 | 0.348 |
| **Chronic medical condition(s) that affect the** | | | | |
| Mother during pregnancy | 9(26.5) | 49(50.5) | 5.900 | 0.015* |
| Involved child | 12(35.3) | 46(47.4) | 1.501 | 0.221 |
| **Acute medical condition(s) that affect the** | | | | |
| Mother during pregnancy | 14(41.2) | 35(36.1) | 0.279 | 0.597 |
| Involved child | 17(50.0) | 63(64.9) | 2.366 | 0.124 |
| **Medications taken by the** | | | | |
| Mother during pregnancy | 19(55.9) | 63(64.9) | 0.884 | 0.347 |
| Involved child | 19(55.9) | 59(60.8) | 0.255 | 0.613 |
| **Fluoride** | 14(41.2) | 69(71.1) | 9.732 | 0.002* |
| **None** | 1(2.9) | 1(0.8) | 0.611 | 0.434 |

N & % in the table represent those of YES answers only.
*Statistical significant differences between GDPs and DNs
GDPs, general dental practitioners; DNs, dental nurses; MIH, molar-incisor hypomineralisation

Table 4: Dental materials and initial management intervention used by GDPs and DNs in treating MIH-affected teeth

| Variables | DNs N (%) | GDPs N (%) | $\chi^2$ | P value |
|---|---|---|---|---|
| **Type of dental materials used in treating MIH tooth/teeth** | | | | |
| Amalgam | 0 | 7(7.2) | 2.592 | 0.107 |
| Composite resin | 21(61.7) | 47(48.5) | 1.787 | 0.181 |
| GIC | 27(79.4) | 70(72.2) | 0.688 | 0.407 |
| Compomer | 0 | 8(8.2) | 2.987 | 0.084 |
| RMGIC | 4(11.8) | 11(11.3) | 0.004 | 0.947 |
| Prefabricated crowns | 2(5.8) | 19(19.6) | 2.581 | 0.061 |
| | | | | |
| **Initial management intervention** | | | | |
| **Fluoride varnish** | | | | |
| 1st preference | 24(70.6) | 57(58.8) | 3.573 | 0.467 |
| 2nd preference | 4(11.8) | 11(11.3) | | |
| 3rd preference | 0 | 7(7.2) | | |
| Not sure | 6(17.6) | 22(22.6) | | |
| **Sealants** | | | | |
| 1st preference | 12(35.3) | 26(26.8) | 5.773 | 0.217 |
| 2nd preference | 9(26.5) | 28(28.9) | | |
| 3rd preference | 2(5.9) | 21(21.6) | | |
| Not sure | 11(32.4) | 22(22.6) | | |
| **Tooth mousse** | | | | |
| 1st preference | 10(29.4) | 26(26.8) | 5.217 | 0.266 |
| 2nd preference | 3(8.8) | 22(22.7) | | |
| 3rd preference | 9(26.5) | 28(28.9) | | |
| Not sure | 12(35.3) | 21(21.6) | | |

N & % in the table represent those of YES answers only.

GDPs, general dental practitioners; DNs, dental nurses; MIH, molar-incisor hypomineralisation