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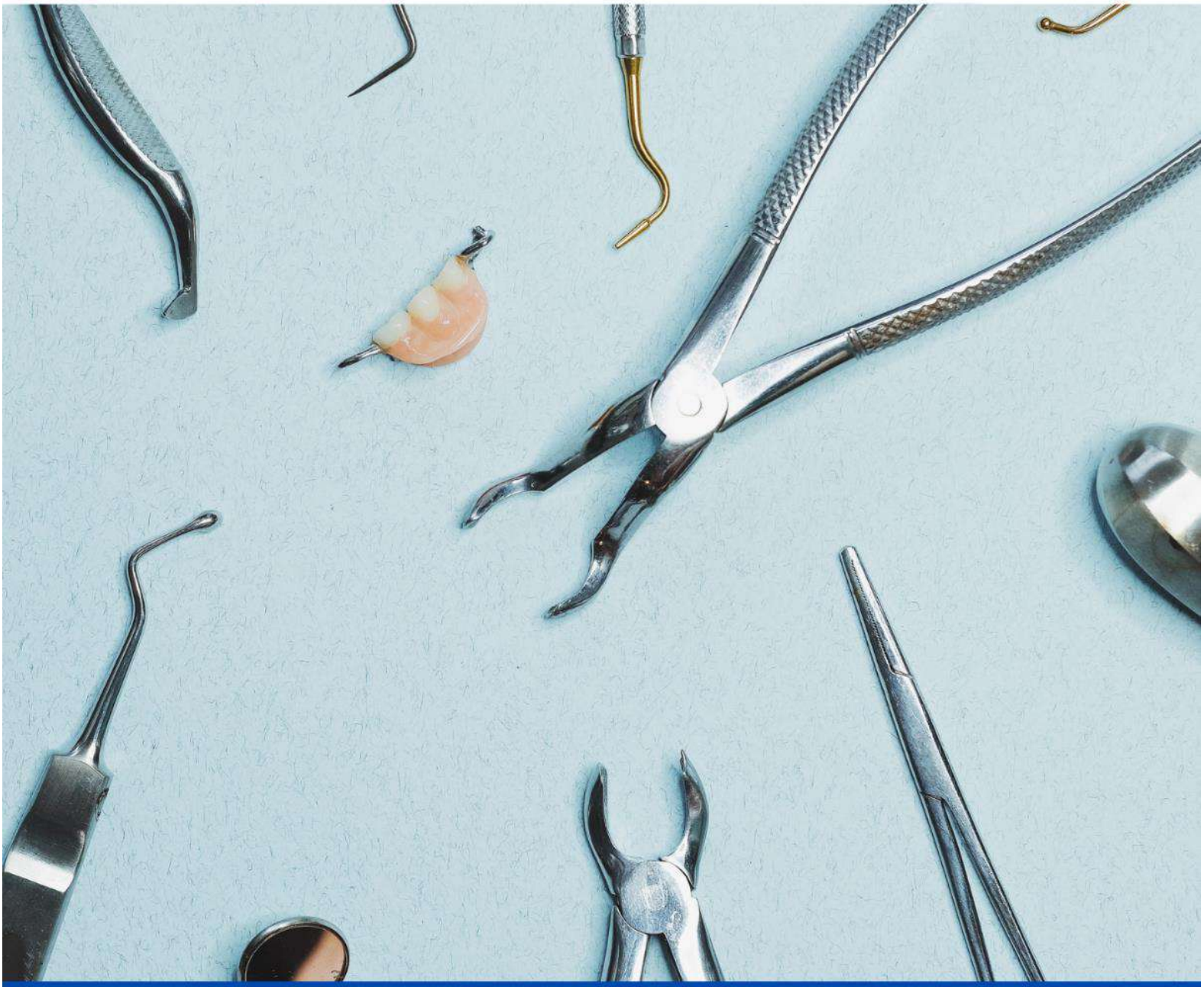

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RESEARCH ARTICLE

Clinical Characteristic and Severity of Molar-Incisor Hypomineralisation in 8-10 Years Old

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ABSTRACT

Background: *Molar Incisor Hypomineralization (MIH) is a qualitative developmental defect of tooth enamel that affects one or more permanent first molars and may involve incisors. The clinical features of MIH can include demarcated opacities, post-eruptive enamel breakdown, atypical caries, atypical restorations, and missing teeth due to MIH. Molar incisor hypomineralization is a common enamel defect with a relatively high prevalence worldwide, ranging from 9.2% to 14.2%. Data on the prevalence of MIH and clinical features of MIH in Indonesia are still minimal.* ***Objective:*** *To observe the distribution of clinical features and severity of molar-incisor hypomineralization in children aged 8-10 years in Kemanggisan urban village.* ***Materials and Methods:*** *This study used a descriptive observational study with a cross-sectional method. Data was collected through random sampling by examining 267 child subjects in the field.* ***Results:*** *The prevalence of MIH in Kemanggisan urban village was 29,2%. There was no significant difference in gender and age in the distribution of clinical features and severity levels. The highest prevalence of clinical features and severity levels were demarcated opacities and mild, at 9,6%.* ***Conclusion:*** *The most prevalent clinical feature and severity level was demarcated opacities and mild in children aged 8-10 years in Kemanggisan urban village.*

Keywords: *Children, Clinical Features, Molar Incisor Hypomineralization, Prevalence, Severity*

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INTRODUCTION

Molar Incisor Hypomineralization (MIH) is a common enamel defect with a relatively high prevalence worldwide.[1,2] It is a systemic and qualitative developmental defect of dental enamel that affects one or more first permanent molars (FPM), often involving the incisors.[3-5] This condition results from disturbances in amelogenesis, leading to enamel with reduced mineral content and increased porosity.[6,7] The diagnostic criteria of MIH were first introduced by the European Academy of Pediatric Dentistry (EAPD) in 2003, it includes clinical characteristics such as demarcated opacities, post-eruptive enamel breakdown (PEB), atypical caries, increased tooth sensitivity, and missing teeth due to MIH.[3,8]

The presence of MIH significantly impacts oral health, as affected teeth are more susceptible to dental caries and hypersensitivity and may also impact the quality of life.[5,9-11] Children with MIH experience challenges in maintaining oral hygiene, leading to an increased risk of restorative failures and requiring frequent dental visits.[12,13] The reduced mechanical properties of hypomineralized enamel make treatment difficult, often necessitating complex restorative approaches.[13,14]

MIH prevalence varies across countries and is estimated from 2.4% to 40.2%, with a global prevalence of approximately 9.2% to 14.2%.[3,15-17] Studies in Southeast Asia, including Thailand, Singapore, and Malaysia, have reported prevalence rates of 27.7%, 12.5%, and 16.9%, respectively.[1,18,19] A study conducted in Pasteur, Bandung, Indonesia, reported a prevalence of MIH is 19%.[20] Despite the growing concern over MIH, data on its prevalence and clinical characteristics in Indonesia remain scarce. The available data indicate high prevalence rates and may differ across regions in Indonesia, therefore requiring further research. The lack of comprehensive data on MIH and the lack of awareness among dental practitioners in Indonesia further contribute to delayed intervention and pose a challenge for early diagnosis and management.[21] These limitations lead to undetected early MIH cases, therefore, early prevention of MIH to prevent its adverse effects remains hampered. Understanding the prevalence, clinical manifestations, and severity of MIH in children is essential for developing preventive and treatment strategies, which are the purposes of this study focusing on Kemanggisan urban village, West Jakarta.

MATERIALS AND METHODS

Study design and research subjects

Ethical approval was granted by the Ethical Committee, Faculty of Dentistry, Universitas Trisakti (863/S1/KEPK/FKG/7/2024). This research is a descriptive observational study using a cross-sectional method. Stratified random sampling was used to determine subdistricts, urban villages, and schools. Three elementary schools were chosen in Kemanggisan urban village, West Jakarta, with a total sample of 267 students from SDN Kemanggisan 01 Pagi, SDN Kemanggisan 06 Pagi, and SDN Kemanggisan 08 Pagi. The inclusion criteria for subjects include children aged 8–10 years old with consent approval from guardians or parents for oral and dental examination and children with at least one permanent molar and more than one-third of the occlusal surface visible. Children with enamel defects due to trauma, those undergoing or having undergone orthodontic treatment, children with amelogenesis imperfecta, and uncooperative children were excluded.

Diagnostic criteria

The examiner (ED) was trained using a series of photographs. Kappa statistics revealed inter-examiner and intra-examiner agreements as very good (0.82) and good (0,8), respectively. This examiner conducted dental examinations on children aged 8–10 using EAPD criteria.[3]

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MIH is diagnosed from clinical characteristics, which are demarcated opacities, post-eruptive enamel breakdown, atypical caries and restoration, and missing teeth due to MIH. Demarcated opacities are abnormal conditions that appear as clearly defined opacities on the occlusal and buccal surfaces of the crown. The color of opacities ranges from white, cream, or yellow to brownish. Small defects measuring less than 1 mm are not reported. Post-eruptive Enamel Breakdown (PEB) refers to the post-eruptive enamel disintegration due to damage caused by masticatory pressure on fragile enamel, leading to dentin exposure and rapid caries development. Atypical restorations are restorations with sizes and shapes that do not conform to the typical caries pattern. In molars, restorations extend to the buccal or palatal surfaces or the cusp of the teeth, with opacities often visible at the restoration margins. Restorations on the labial surface of permanent incisors are not associated with trauma to primary teeth. Extracted teeth can be defined as cases of molar-incisor hypomineralization only when there are medical records or demarcated opacities on other permanent first molars. If such records are absent, the condition is not diagnosed as molar-incisor hypomineralization.[3,5]

The severity of molar-incisor hypomineralization (MIH), according to the European Academy of Pediatric Dentistry (EAPD), is classified by clinical appearance as follows: Mild symptoms are characterized by discoloration (white-yellowish, yellow, or brown) affecting the index teeth. Severe symptoms are defined by enamel loss accompanied by dentin exposure and/or atypical restorations on the permanent first molars or the permanent first molars with involvement of the incisors.[3,5] The examination is performed under wet conditions using a dental mirror and a flashlight for illumination.

These clinical characteristics in index teeth [4 first permanent molars (FPMs) and 8 permanent incisors (PIs)] were recorded using the short form examination format, which serves as a simple screening survey based on EAPD criteria.[5] The charting of EAPD index criteria is shown below:

Table 1. Diagnostic criteria[3]

Score	Definition
0	No defect enamel
1	Defect enamel, not MIH
2	Demarcated opacities
3	Post-eruptive enamel breakdown
4	Atypical restoration
5	Atypical caries
6	Missing due to MIH
7	Cannot be scored
I	Less than 1/3 affected
II	At least 1/3 but less than 2/3 of the tooth affected
III	At least 2/3 of the tooth affected
Mild	Tooth with demarcated opacities
Severe	Tooth with PEB. Atypical caries. atypical restoration, missing due MIH

Subjects examination

Prior to the examination, all children were provided with a fluoridated toothpaste and toothbrush. Students were instructed to use this product to clean their teeth, supervised by the examiner. The clinical examination was conducted by a trained examiner in a school classroom under adequate lighting, with the assistance of a headlamp. The teeth were assessed in a wet condition, and the remaining plaque and debris were further cleaned using a cotton roll to facilitate diagnosis. A dental mirror and WHO probe were utilized for the identification of HMI lesions, ensuring alignment with the guidelines established by the European Academy of Paediatric Dentistry (EAPD).

Data analysis

Data and intraoral photos of MIH, such as post-eruptive enamel breakdown, demarcated opacities, atypical restorations, and atypical caries, were recorded from the collected clinical MIH data. All clinical examination was performed by one examiner and kappa value

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was used for Calibration of intra-examiner reproducibility. The data were analyzed using univariate analysis for frequencies, distribution, severity, and clinical characteristics of MIH. Chi-squared tests were carried out to compare between distribution, severity of MIH according to sex and age using SPSS 23 statistical software with a level of significance set at $p<0.05$.

RESULT

The study was conducted in the Kemanggisan urban village across three public elementary schools, SDN Kemanggisan 01 Pagi, SDN Kemanggisan 06 Pagi, and SDN Kemanggisan 08 Pagi, from September 20 to November 16, 2024. The study aimed to determine the distribution of MIH clinical features and severity levels in Kemanggisan. A total of 267 children with the mean age was 8.85 (SD±0.748), consisting of 147 girls and 120 boys with mean age 8.72 (SD±0.710) and 9.00 (SD±0.767) respectively. These samples met the inclusion criteria, with the highest distribution observed among girls and 9-year-old children (41.9%) (Figure 1).

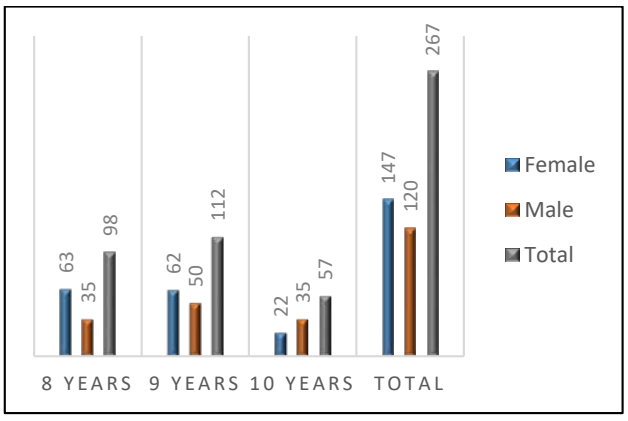

Figure 1. Age distribution according to sex

Figure 2 shows that the prevalence of MIH in children aged 8–10 years is 29.2% (N=78) out of a total sample of 267 children. Children who were not affected by MIH accounted for 70.8% (n=189). The highest distribution of MIH was found in boys, at 32.5% (n=39), but there was no significant difference between boys and girls (p>0.05) (Table 2).

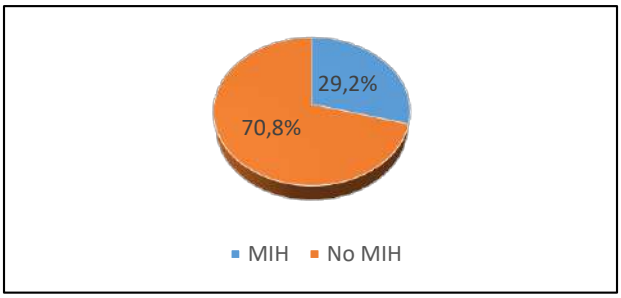

Figure 2. MIH distribution

Table 2. MIH distribution according to sex

Sex	MIH		No MIH		p-value
Male	39	32.5	81	67.5	0.351
Female	39	26.5	108	73.5	
Total	78	29.2	189	70.8	

The distribution of MIH by age group, with the highest prevalence observed in 10-year-old children (33.3%, n=19) and the lowest in 8-year-old children (26.5%, n=26). There was no significant difference in the distribution of MIH among children aged 8, 9, and 10 years (Table 3).

Table 3. MIH distribution according to age

Age	MIH		No MIH		*p-value*
	n	%	n	%	
8	26	26.5	72	73.5	0.666
9	33	29.5	79	70.5	
10	19	33.3	38	66.7	
Total	78	29.2	189	70.8	

Table 4 indicates that the highest occurrence of MIH was in the upper jaw at 16.5% (n=88), but there was no significant difference in MIH distribution between the upper and lower jaws (p>0.05). The distribution of clinical features of molars affected by MIH is shown in table 5. Demarcated opacities were the most frequently observed clinical feature in MIH patients, at 9.6% (n=102). In this study, no cases of missing teeth due to MIH were found.

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Table 4. MIH distribution according to arch

Jaw	MIH		No MIH		*p-value*
	n	%	n	%	
Upper Jaw	88	16.5	446	83.5	0.676
Lower Jaw	82	15.4	452	84.6	

Table 5. Clinical characteristic MIH in molars

Clinical features of MIH	Teeth no.									
	16		26		36		46		Total	
	n	%	n	%	n	%	n	%	n	%
Unerupted	2	0.7	1	0.4	0	0	0	0	3	0.3
Normal	215	80.5	216	80.9	225	84.3	220	82.4	873	81.7
Enamel defect. non MIH	7	2.6	7	2.6	2	0.7	3	1.1	19	1.8
Demarcated opacities	29	10.9	31	11.6	18	6.7	21	7.9	102	9.6
PEB	6	2.2	8	3.0	4	1.5	7	2.6	25	2.3
Atypical restoration	0	0	0	0	1	0.4	0	0	1	0.1
Atypical Caries	8	3.0	4	1.5	16	6.0	14	5.2	42	3.9
Missing due to caries	0	0	0	0	0	0	0	0	0	0
Can not be scored	0	0	0	0	1	0.4	2	0.7	3	0.3
Total	267		267		267		267		1068	

Table 6 presents the distribution of clinical features in incisors diagnosed with MIH. Similar to molars, demarcated opacities were the most commonly observed clinical feature in both the upper and lower incisors.

Table 6. Clinical characteristic MIH in incisor

Gambaran Klinisi HMI	Teeth																
	12		11		21		22		32		31		41		42		Total
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	
Unerupted	8	10.3	0	0	0	0	11	14.1	4	5.1	0	0	0	0	5	6.4	28
Normal	59	75.6	62	79.5	58	74.4	54	69.2	71	91.0	70	87.7	70	89.7	70	89.7	514
Enamel defect non MIH	5	6.4	6	7.7	6	7.7	5	6.4	1	1.3	1	1.3	0	0	0	0	24
Demarcated opacities	6	7.7	8	10.3	8	10.3	7	9.0	2	2.6	5	6.4	8	10.3	3	3.8	47
PEB	0	0	2	2.6	2	2.6	1	1.3	0	0	2	2.6	0	0	0	0.0	7
Atypical restoration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Atypical caries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Missing due to MIH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can not be scored	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	78	100	78	100	78	100	78	100	78	100	78	100	78	100	78	100	624

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The distribution of MIH severity levels is shown in table 7. with the mild category being the most prevalent at 9.6%. By gender, the highest severity distribution of MIH was found in boys at 10.6% (n=51), but there was no significant difference in severity levels between boys and girls (p>0.05). Distribution severity according to age is shown in table 8. Mild MIH severity was highest among 8-year-old children at 10.2% (n=40), while severe MIH was most common in 10-year-olds at 7.9% (n=18). Table 9 also shows that there was no significant difference in MIH severity between age groups (p>0.05)

Table 7. Degree of severity according to sex

Sex	Severity Level of MIH						*p-value*
	No MIH		*Mild*		*Severe*		
	n	%	n	%	n	%	
Boys	396	82.5	51	10.6	33	6.9	0.435
Girls	502	85.4	51	9.7	35	6.0	
Total	898	84.1	101	9.6	68	6.8	

Table 8. Degree of severity according to age

Age(Years)	Severity of MIH						*p-value*
	Non MIH		*Mild*		*Severe*		
	n	%	n	%	n	%	
8	334	85.2	40	10.2	18	4.6	0.466
9	375	83.7	41	9.2	32	7.1	
10	189	82.9	21	9.2	18	7.9	
Total	898	84.1	102	9.6	68	6.4	

According to Table 9, most MIH patients had only one affected molar at 35.9% (n=28), while the lowest number of affected molars was 4 molar at 14.1% (n=11). Table 10 shows that the most common pattern was two affected molars with no affected incisors at 77.3% (n=17). This study found no increase in the number of affected incisors as the number of affected molars increased.

Table 9. Molar tooth involvement in MIH children aged 8-10 years old

Molars	MIH	
	n	%
1 molar	28	35.9
2 molars	22	28.2
3 molars	17	21.8
4 molars	11	14.1
Total	78	100

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Tabel 10. The distribution of incisor involvement according to the number of affected molars in children aged 8-10 years old with MIH.

MIH Molars	Incisive involvement																	
	0		1		2		3		4		5		6		7		8	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1	17	60.7	7	25.0	1	3.6	3	10.7	0	0	0	0	0	0	0	0	0	0
2	17	77.3	1	4.5	2	9.1	2	9.1	0	0	0	0	0	0	0	0	0	0
3	10	58.8	3	17.6	2	11.8	2	11.8	1	5.3	0	0	0	0	0	0	0	0
4	7	63.6	0	0	2	18.2	0	0	1	9.1	0	0	0	0	0	0	1	9.1
Total	51	65.4	11	14.1	7	9.0	7	9.0	1	1.3	0	0	0	0	0	0	1	1.3

DISCUSSION

This study aims to determine the prevalence of MIH (Molar Incisor Hypomineralization) in children aged 8–10 years old in Kemanggisan, West Jakarta, as well as the clinical characteristics and severity levels. This area of population is one of the subdistricts in West Jakarta was chosen using a randomized method. Several MIH indices have been used in previous studies. In 1982, the FDI organization published the DDE index, identifying demarcated opacities, diffuse opacities, and hypoplasia.[8] In 1987, a prevalence study by Koch *et al.* did not use the Developmental Defect of Enamel (DDE) index but instead described enamel defects based on color and surface changes. In 1992, FDI introduced the mDDE index because the DDE index was considered too complex for practical use.[8] In 1996, Alaluusua *et al.* published two studies on enamel defects in FPM using the Alaluusua criteria index. In 2003, the European Academy of Paediatric Dentistry (EAPD) introduced diagnostic criteria for MIH because the mDDE index was deemed too complicated, time-consuming, and did not cover other clinical features such as post-eruptive breakdown (PEB), atypical caries, atypical restorations, and missing due to MIH.[4,22,23] In 2015, Ghanim *et al.* refined the MIH diagnostic criteria by combining the EAPD and mDDE indices, incorporating clinical features, lesion extent and severity levels. The EAPD officially standardized this index for epidemiological MIH studies.[23]

This study adopts the EAPD index as a standard for MIH epidemiological research, allowing its prevalence and severity results to be compared with studies from other countries using the same index. The prevalence of MIH in Kemanggisan similar results to a study at SDN Tomang 01 Pagi (28.9%) which in the same district West Jakarta.[24] However, it was relatively high compared to studies in Japan (19.8%) and Singapore (12.5%).[1,25] This study shows a higher MIH prevalence than a previous Indonesian study in Pasteur, Bandung (19%).[20] The similarity prevalence between Kemanggisan and Tomang, which is in the same district, West Jakarta, shows that it may be influenced by socioeconomic and also geographic or environmental factors.

MIH prevalence in Kemanggisan is higher than the global estimate (9.4–14.2%), with variations across regions possibly influenced by ethnicity, socioeconomic status, and cultural factors. Differences in results between studies could arise due to differences in diagnostic criteria, indices, sample sizes, age groups, examiner calibration, and data collection methods. Research has shown that using EAPD criteria results in higher prevalence values compared to other diagnostic criteria.[23] Studies in Iran found that MIH prevalence in Ardebil (24%) using the EAPD index was higher than in

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Zahedan (12.7%) using the DDE index.[26] The 8–10 year age group is the optimal time for MIH diagnosis, as standardized by the EAPD, when all first permanent molars and most permanent incisors have erupted. In older children, MIH-affected molars may be difficult to identify due to post-eruptive enamel breakdown (PEB) and previous restorative treatments.[23]

This study found that MIH was more prevalent in boys than in girls, but the difference was not statistically significant. Similar results were reported in Poland, Beijing, and India, while a study in Madrid found that girls had significantly higher MIH prevalence.[27-30] A meta-analysis by Schwendicke *et al.* confirmed that there is no significant difference in MIH prevalence based on gender.[31]

The highest age distribution in this study was in 10-year-old children at 33.3% (n=19), with no significant difference between ages. Studies in Barcelona reported that 9-year-olds had the highest MIH prevalence, while Madrid, Syria, and Nigeria found no significant differences between age groups.[3,32-34] A meta-analysis by Zhao *et al.* suggested that older children show lower MIH prevalence due to increased tooth loss over time.[16]

The most common severity level in this study was mild MIH at 9.6%, which aligns with findings from Fujairah, Lebanon, and Egypt.[35-37] The similarity in severity in these studies may be due to the same age group population, which is recommended by EAPD. Other studies in endemic fluorosis areas found higher severe MIH prevalence, possibly due to misdiagnosis between MIH and fluorosis. [38]

This study found no significant differences in MIH severity between boys and girls, consistent with studies in Lebanon.[36] Studies by Zhao D, Mishra, and Hamdan suggest that MIH severity increases with age due to greater masticatory pressure and caries risk.[16,29,37] This study supports that finding, with severe cases being most prevalent at age 10 and mild cases at age 8. Severe MIH increases plaque accumulation, gingival inflammation, and caries risk due to the porous nature of MIH-affected enamel, which leads to hypersensitivity.[39] Hypersensitivity may discourage children from brushing their teeth, leading to poor oral hygiene and increased plaque accumulation.[5,9,13] The decreased resistance and elasticity of MIH teeth also contribute to enamel breakdown and PEB, which further increases plaque buildup and caries risk.[9,10,39,40]

Previous studies have shown that first molars affected by MIH are more commonly found in the upper jaw than the lower jaw. This finding is consistent with the present study, where maxillary first molars had a higher MIH prevalence than mandibular first molars, though the difference was not statistically significant. A study by Gomez *et al.* in Barcelona reported similar findings, explaining that mandibular molars erupt earlier than maxillary molars, making them more susceptible to extensive caries which make difficulties in MIH diagnosis.[32] However, studies by R. Elzein *et al.* and S. Yannam *et al.* found different results. Chawla *et al.* noted that the mandible is easier to examine directly, whereas maxillary molars require indirect vision, increasing the likelihood of diagnostic errors.[36,41,42]

In this study, demarcated opacities were the most common MIH lesion, consistent with other studies.[43] This finding may be because demarcated opacities are easier to diagnose with direct visualization and adequate lighting. Demarcated opacities is an early lesion usually find in new erupted teeth. The severity will increase with age, which can change mild lesion to a severe lesion due to mastication and environmental factors. Other clinical features, such as PEB and MIH-induced caries, were harder to distinguish due to poor oral hygiene and high caries rates among participants. Extensive enamel damage also posed a challenge in differentiating MIH-related caries from regular caries.

In this study, the most commonly affected number of molars was one molar,

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whereas a study in Syria found that two molars were most commonly affected. Similar results were reported in studies in Sudan.[44] Variations in findings may be attributed to regional differences in habits and characteristics. This study was limited to one subdistrict area in West Jakarta, was conducted with a cross-sectional method and needs a cohort study with a larger area of population to obtain more accurate data about the MIH population. A cohort longitudinal observation is also needed to identify etiological factors in Indonesia.

CONCLUSION

The prevalence of molar incisor hypomineralization (MIH) in children aged 8-10 years in Kemanggisan is 29.2%. The most commonly observed clinical feature is demarcated opacities, accounting for 9.6%. The most common severity level of MIH is mild. These findings underscore the need for early diagnosis and appropriate management strategies to minimize the impact of MIH on children's oral health. Expanding the scope of research to other regions in Indonesia would help determine whether MIH prevalence, clinical features, and severity levels are affected by geographic or socioeconomic factors. Future studies should identify specific environmental and genetic risk factors contributing to MIH in Indonesia.

REFERENCES

1. Ng JJ, Eu OC, Nair R, Hong CH. Prevalence of molar incisor hypomineralization (MIH) in Singaporean children. Int J Paediatr Dent. 2015;25(2):73-78.
2. Elhennawy K, Schwendicke F. Managing molar-incisor hypomineralization: A systematic review. J Dent. 2016;5(1879-176X (Electronic)):16-24.
3. Lygidakis N, Garot E, Somani C, Taylor G, Rouas P, Wong F. Best clinical practice guidance for clinicians dealing with children presenting with molar-incisor-hypomineralisation (MIH): an updated European Academy of Paediatric Dentistry policy document. Eur Arch Paediatr Dent. 2022;23(1):3-21 doi:10.1007/s40368-40021-00668-40365.
4. Garot E, Rouas P, Somani C, Taylor G, Wong F, Lygidakis N. An update of the aetiological factors involved in molar incisor hypomineralisation (MIH): a systematic review and meta-analysis. Eur Arch Paediatr Dent. 2022;23(1):23-38. doi: 10.1007/s40368-021-00646-x.
5. Ghanim A, Silva MJ, Elfrink MEC, et al. Molar incisor hypomineralisation (MIH) training manual for clinical field surveys and practice. Eur Arch Paediatr Dent. 2017;18(4):225-242.
6. Elhennawy K, Manton DJ, Crombie F, et al. Structural, mechanical and chemical evaluation of molar-incisor hypomineralization-affected enamel: A systematic review. Arch Oral Biol. 2017;83:272-281.
7. Elhennawy K, Bekes K, Dobsak A, Tangl S, Shokoohi-Tabrizi H, Schwendicke F. Structural, mechanical, and chemical evaluation of molar incisor hypomineralization-affected enamel. In: Bekes K. Molar Incisor Hypomineralization: A Clinical Guide to Diagnosis and Treatment. Cham, Switzerland: Springer Nature Switzerland AG; 2020.
8. Bekes K, Weerheijm K. Diagnosis, Classifications and Treatment Strategies of MIH-Affected Teeth. In: Bekes K. Molar Incisor Hypomineralization. A Clinical Guide to Diagnosis and Treatment. Cham, Switzerland: Springer Nature Switzerland AG; 2020.
9. Dantas-Neta NB, Moura LF, Cruz PF, et al. Impact of molar-incisor hypomineralization on oral health-related quality of life in schoolchildren. Braz Oral Res. 2016;30(1):e117.
10. Portella PD, Menoncin BLV, de Souza JF, de Menezes J, Fraiz FC, Assuncao L. Impact of molar incisor hypomineralization on quality of life in children with early mixed dentition: A hierarchical approach. Int J Paediatr Dent. 2019;29(4):496-506.
11. Ghanim A, Mariño R, Manton D. Validity and reproducibility testing of the Molar Incisor Hypomineralisation (MIH) Index. Int J Paediatr Dent. 2019;29(1):6-13.
12. Ghanim A, Morgan M, Marino R, Bailey D, Manton D. Molar-incisor hypomineralisation: prevalence and defect characteristics in Iraqi

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children. Int J Paediatr Dent. 2011;21(6):413-421.
13. Americano G, Jacobsen P, Soviero V, Haubek D. A systematic review on the association between molar incisor hypomineralization and dental caries. Int J Paediatr Dent. 2017;27(1):11-21.
14. Bozal CB, Kaplan A, Ortolani A, Cortese SG, Biondi AM. Ultrastructure of the surface of dental enamel with molar incisor hypomineralization (MIH) with and without acid etching. Acta Odontol. Latinoam. 2015;28(2):192-198.
15. Pentapati K, Yeturu S, Siddiq H. Systematic review and meta-analysis of the prevalence of molar-incisor hypomineralization. J Int Oral Health. 2017;9:243 - 250.
16. Zhao D, Dong B, Yu D, Ren Q, Sun Y. The prevalence of molar incisor hypomineralization: evidence from 70 studies. Int J Paediatr Dent. 2018;28(2):170-179.
17. Koruyucu M, Özel S, Tuna EB. Prevalence and etiology of molar-incisor hypomineralization (MIH) in the city of Istanbul. J Dent Sci. 2018;13(4):318-328.
18. Pitiphat W, Luangchaichaweng S, Pungchanchaikul P, Angwaravong O, Chansamak N. Factors associated with molar incisor hypomineralization in Thai children. Eur J Oral Sci. 2014;122(4):265-270.
19. Hussein A, Faisal M, Haron M, Ghanim A, Abu-Hassan M. Distribution of Molar Incisor Hypomineralization in Malaysian Children Attending University Dental Clinic. The Journal of Clinical Pediatric Dentistry. 2015;38(3).
20. Praptiwi YH, Prayitno ND, Sukmasari S. Prevalence of Molar Incisors Hypomineralisation (MIH) in primary school children. Padjadjaran Journal of Dentistry 79-84. 2019;31(2):79-84.
21. Dian E, Budiardjo SB, Ghanim A, Amir LR, Maharani DA. Knowledge and Perceptions of Molar Incisor Hypomineralisation among General Dental Practitioners, Paediatric Dentists, and Other Dental Specialists in Indonesia. Dent. J. 2022;10(10).
22. Ghanim A, Elfrink M, Weerheijm K, Marino R, Manton D. A practical method for use in epidemiological studies on enamel hypomineralisation. Eur Arch Paediatr Dent. 2015;16(3):235-246.
23. Elfrink ME, Ghanim A, Manton DJ, Weerheijm KL. Standardised studies on Molar Incisor Hypomineralisation (MIH) and Hypomineralised Second Primary Molars (HSPM): a need. Eur Arch Paediatr Dent. 2015;16(3):247-255.
24. Aishah S, Rahmadini E. Prevalensi dan derajat keparahan hipomineralisasi molar-insisivus pada anak usia 7-12 tahun : kajian pada siswa SDN Tomang 01 Pagi. Jakarta: Universitas Trisakti; 2018.
25. Saitoh M, Nakamura Y, Hanasaki M, et al. Prevalence of molar incisor hypomineralization and regional differences throughout Japan. Environ Health Prev Med. 2018;23(1):55.
26. Einollahi M, Hekmatfar S, Molaei M. Association between Molar Incisor Hypomineralization and Both Prenatal and Postnatal Factors in 8-10-Year-Old Children in Ardebil. J Evol Med Dent Sci. 2020;9(48):3606–3610.
27. N G, K E. Molar Incisor Hypomineralization: Prevalence and severity among children from Nothern Poland. Eur J Paediatr Dent. 2019;20(1):59–66.
28. Yi X, Chen W, Liu M, Zhang H, Hou W, Wang Y. Prevalence of MIH in children aged 12 to 15 years in Beijing, China. Clin Oral Investig. 2021;25(1):355–361.
29. Mishra A, Pandey RK. Molar Incisor Hypomineralization: An Epidemiological Study with Prevalence and Etiological Factors in Indian Pediatric Population. Int J Clin Pediatr Dent. 2016;9(2):167-171.
30. Ortega-Luengo S, Feijóo-Garcia G, Miegimolle-Herrero M, Gallardo-López N, Caleya-Zambrano A. Prevalence and clinical presentation of molar incisor hypomineralisation among a population of children in the community of Madrid. BMC Oral Health. 2024;24(1):1-9.
31. Schwendicke F, Elhennawy K, Reda S, Bekes K, Manton DJ, Krois J. Global burden of molar incisor hypomineralization. J Dent. 2018;68:10-18.
32. Martinez Gomez TP, Guinot Jimeno F, Bellet Dalmau LJ, Giner Tarrida L. Prevalence of molar-incisor hypomineralisation observed using transillumination in a group of children from Barcelona (Spain). Int J Paediatr Dent. 2012;22(2):100-109.
33. Oyedele T, Folayan M, Adekoya-Sofowora C, Oziegbe E, Esan T. Prevalence, pattern and severity of molar incisor hypomineralisation in 8- to 10-year-old school children in Ile-Ife, Nigeria. Eur Arch Paediatr Dent. 2016;16(3):277–282.

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34. Oyedele TA, Folayan MO, Adekoya-Sofowora CA, Oziegbe EO, Esan TA. Prevalence, pattern and severity of molar incisor hypomineralisation in 8- to 10-year-old school children in Ile-Ife, Nigeria. Eur Arch Paediatr Dent. 2015;16(3):277-282.
35. Brejawi M, Venkiteswaran A, Ergieg S, Sabri B. Prevalence and severity of Molar-Incisor Hypomineralisation in children in Fujairah, United Arab Emirates. Eur J Paediatr Dent. 2023;24(2):139–143.
36. Elzein R, Chouery E, Abdel-Sater F, Bacho R, Ayoub F. Molar incisor hypomineralisation in Lebanon: prevalence and clinical characteristics. Eur Arch Paediatr Dent. 2020;21(5).
37. Hamdan M, Abu-Ghefreh E, Al-Abdallah M, Rajab L. The prevalence and severity of molar incisor hypomineralization (MIH) among 8 year-old children in Amman, Jordan. . Egypt Dent J. 2020;66(4):1989–1997.
38. Sosa-Soto J, Padrón-Covarrubias A, Márquez-Preciado R, et al. Molar incisor hypomineralization (MIH): prevalence and degree of severity in a Mexican pediatric population living in an endemic fluorosis area. J Public Health Dent. 2022 82(1):3–10.
39. Turkmen E, Ozukoc C. Impact of molar incisor hypomineralization on oral hygiene and gingival health in 8–15-years-old children. Aust Dent J. 2022;67(S1):S50–56. .
40. Gutiérrez T, Ortega C, Pérez N, AG P. Impact of molar incisor hypomineralization on oral health-related quality of life in mexican schoolchildren. J Clin Pediatr Dent. 2019;43(5):324–330.
41. Oliver K, Messer LB, Manton DJ, et al. Distribution and severity of molar hypomineralisation: trial of a new severity index. Int J Paediatr Dent. 2014;24(2):131-151.
42. Yannam SD, Amarlal D, Rekha CV. Prevalence of molar incisor hypomineralization in school children aged 8-12 years in Chennai. J Indian Soc Pedod Prev Dent. 2016;34(2):134-138.
43. Arslanagic-Muratbegovic A, Markovic N, Zukanovic A, Tiro A, Dzemidzic V. Molar Incisor Hypomineralization: Prevalence and severity in six to nine-year-old Sarajevo children. Eur J Paediatr Dent. 2020;21(3).
44. Abdalla H, Abuaffan A, Kemoli A. Molar incisor hypomineralization, prevalence, pattern and distribution in Sudanese children. BMC Oral Health. 2021;21(1):1-8.

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children. Int J Paediatr Dent. 2011;21(6):413-421.
13. Americano G, Jacobsen P, Soviero V, Haubek D. A systematic review on the association between molar incisor hypomineralization and dental caries. Int J Paediatr Dent. 2017;27(1):11-21.
14. Bozal CB, Kaplan A, Ortolani A, Cortese SG, Biondi AM. Ultrastructure of the surface of dental enamel with molar incisor hypomineralization (MIH) with and without acid etching. Acta Odontol. Latinoam. 2015;28(2):192-198.
15. Pentapati K, Yeturu S, Siddiq H. Systematic review and meta-analysis of the prevalence of molar-incisor hypomineralization. J Int Oral Health. 2017;9:243 - 250.
16. Zhao D, Dong B, Yu D, Ren Q, Sun Y. The prevalence of molar incisor hypomineralization: evidence from 70 studies. Int J Paediatr Dent. 2018;28(2):170-179.
17. Koruyucu M, Özel S, Tuna EB. Prevalence and etiology of molar-incisor hypomineralization (MIH) in the city of Istanbul. J Dent Sci. 2018;13(4):318-328.
18. Pitiphat W, Luangchaichaweng S, Pungchanchaikul P, Angwaravong O, Chansamak N. Factors associated with molar incisor hypomineralization in Thai children. Eur J Oral Sci. 2014;122(4):265-270.
19. Hussein A, Faisal M, Haron M, Ghanim A, Abu-Hassan M. Distribution of Molar Incisor Hypomineralization in Malaysian Children Attending University Dental Clinic. The Journal of Clinical Pediatric Dentistry. 2015;38(3).
20. Praptiwi YH, Prayitno ND, Sukmasari S. Prevalence of Molar Incisors Hypomineralisation (MIH) in primary school children. Padjadjaran Journal of Dentistry 79-84. 2019;31(2):79-84.
21. Dian E, Budiardjo SB, Ghanim A, Amir LR, Maharani DA. Knowledge and Perceptions of Molar Incisor Hypomineralisation among General Dental Practitioners, Paediatric Dentists, and Other Dental Specialists in Indonesia. Dent. J. 2022;10(10).
22. Ghanim A, Elfrink M, Weerheijm K, Marino R, Manton D. A practical method for use in epidemiological studies on enamel hypomineralisation. Eur Arch Paediatr Dent. 2015;16(3):235-246.
23. Elfrink ME, Ghanim A, Manton DJ, Weerheijm KL. Standardised studies on Molar Incisor Hypomineralisation (MIH) and Hypomineralised Second Primary Molars (HSPM): a need. Eur Arch Paediatr Dent. 2015;16(3):247-255.
24. Aishah S, Rahmadini E. Prevalensi dan derajat keparahan hipomineralisasi molar-insisivus pada anak usia 7-12 tahun : kajian pada siswa SDN Tomang 01 Pagi. Jakarta: Universitas Trisakti; 2018.
25. Saitoh M, Nakamura Y, Hanasaki M, et al. Prevalence of molar incisor hypomineralization and regional differences throughout Japan. Environ Health Prev Med. 2018;23(1):55.
26. Einollahi M, Hekmatfar S, Molaei M. Association between Molar Incisor Hypomineralization and Both Prenatal and Postnatal Factors in 8-10-Year-Old Children in Ardebil. J Evol Med Dent Sci. 2020;9(48):3606–3610.
27. N G, K E. Molar Incisor Hypomineralization: Prevalence and severity among children from Nothern Poland. Eur J Paediatr Dent. 2019;20(1):59–66.
28. Yi X, Chen W, Liu M, Zhang H, Hou W, Wang Y. Prevalence of MIH in children aged 12 to 15 years in Beijing, China. Clin Oral Investig. 2021;25(1):355–361.
29. Mishra A, Pandey RK. Molar Incisor Hypomineralization: An Epidemiological Study with Prevalence and Etiological Factors in Indian Pediatric Population. Int J Clin Pediatr Dent. 2016;9(2):167-171.
30. Ortega-Luengo S, Feijóo-Garcia G, Miegimolle-Herrero M, Gallardo-López N, Caleya-Zambrano A. Prevalence and clinical presentation of molar incisor hypomineralisation among a population of children in the community of Madrid. BMC Oral Health. 2024;24(1):1-9.
31. Schwendicke F, Elhennawy K, Reda S, Bekes K, Manton DJ, Krois J. Global burden of molar incisor hypomineralization. J Dent. 2018;68:10-18.
32. Martinez Gomez TP, Guinot Jimeno F, Bellet Dalmau LJ, Giner Tarrida L. Prevalence of molar-incisor hypomineralisation observed using transillumination in a group of children from Barcelona (Spain). Int J Paediatr Dent. 2012;22(2):100-109.
33. Oyedele T, Folayan M, Adekoya-Sofowora C, Oziegbe E, Esan T. Prevalence, pattern and severity of molar incisor hypomineralisation in 8- to 10-year-old school children in Ile-Ife, Nigeria. Eur Arch Paediatr Dent. 2016;16(3):277–282.

34. Oyedele TA, Folayan MO, Adekoya-Sofowora CA, Oziegbe EO, Esan TA. Prevalence, pattern and severity of molar incisor hypomineralisation in 8- to 10-year-old school children in Ile-Ife, Nigeria. Eur Arch Paediatr Dent. 2015;16(3):277-282.
35. Brejawi M, Venkiteswaran A, Ergieg S, Sabri B. Prevalence and severity of Molar-Incisor Hypomineralisation in children in Fujairah, United Arab Emirates. Eur J Paediatr Dent. 2023;24(2):139–143.
36. Elzein R, Chouery E, Abdel-Sater F, Bacho R, Ayoub F. Molar incisor hypomineralisation in Lebanon: prevalence and clinical characteristics. Eur Arch Paediatr Dent. 2020;21(5).
37. Hamdan M, Abu-Ghefreh E, Al-Abdallah M, Rajab L. The prevalence and severity of molar incisor hypomineralization (MIH) among 8 year-old children in Amman, Jordan. . Egypt Dent J. 2020;66(4):1989–1997.
38. Sosa-Soto J, Padrón-Covarrubias A, Márquez-Preciado R, et al. Molar incisor hypomineralization (MIH): prevalence and degree of severity in a Mexican pediatric population living in an endemic fluorosis area. J Public Health Dent. 2022 82(1):3–10.
39. Turkmen E, Ozukoc C. Impact of molar incisor hypomineralization on oral hygiene and gingival health in 8–15-years-old children. Aust Dent J. 2022;67(S1):S50–56. .
40. Gutiérrez T, Ortega C, Pérez N, AG P. Impact of molar incisor hypomineralization on oral health-related quality of life in mexican schoolchildren. J Clin Pediatr Dent. 2019;43(5):324–330.
41. Oliver K, Messer LB, Manton DJ, et al. Distribution and severity of molar hypomineralisation: trial of a new severity index. Int J Paediatr Dent. 2014;24(2):131-151.
42. Yannam SD, Amarlal D, Rekha CV. Prevalence of molar incisor hypomineralization in school children aged 8-12 years in Chennai. J Indian Soc Pedod Prev Dent. 2016;34(2):134-138.
43. Arslanagic-Muratbegovic A, Markovic N, Zukanovic A, Tiro A, Dzemidzic V. Molar Incisor Hypomineralization: Prevalence and severity in six to nine-year-old Sarajevo children. Eur J Paediatr Dent. 2020;21(3).
44. Abdalla H, Abuaffan A, Kemoli A. Molar incisor hypomineralization, prevalence, pattern and distribution in Sudanese children. BMC Oral Health. 2021;21(1):1-8.