Journal of Health Promotion and Behavior (2025), 10(02): 179-190
Masters Program in Public Health, Universitas Sebelas Maret

Meta-Analysis

Open Access

# Meta-Analysis: The Effect of HBM-Based Health Education on Improving Oral Health in Students

**Weni Irma Suryani, Titik Haryanti, Iik Sartika**

Faculty of Public Health, Universitas Veteran Bangun Nusantara Sukoharjo, Indonesia

*Received: 3 January 2025; Accepted: 14 February 2025; Available online: 16 April 2025*

## ABSTRACT

**Background:** Oral health problems are an important concern in health development, one of which is caused by the vulnerability of school-age children from oral and dental health disorders. School age is an important age in the growth and physical development of children. One of them is the habit of maintaining oral and dental health. This study aims to analyze and estimate the influence of HBM-based health education on oral and dental health in students.

**Subject and Method:** The meta-analysis was performed according to the flow of the PRISMA diagram and the PICO model. The search for articles in this study is through databases that include PubMed, Google Scholar, Science Direct and Scopus. With keywords including: "Oral health" AND "Health Belief Model" AND "Students". Full paper article with RCT study, the subject of the study is the student, the measure of the relationship used is SMD, the outcome of the research is knowledge and perception of the severity of obesity prevention. Analysis was done with Revman 5.3

**Results:** There were 6 articles with randomized control trial designs from Iran and Hong Kong with 829 research samples. A meta-analysis of 6 randomized control trial studies concluded that students who received HBM-based education had a 1.04-fold higher perceived benefit for improving oral health compared to students who did not receive education, and the effect was statistically significant (SMD= 1.04; CI 95%= 0.28 to 1.79; p= 0.007). A meta-analysis of 5 randomized control trial studies concluded that students who received HBM-based education had a higher perception of severity to improve oral health 1.73 times compared to students who did not receive education, and the effect was statistically significant (SMD= 1.73; CI 95%= 0.49 to 2.98; p=0.006).

**Conclusion:** HBM-based education has benefit to improve oral health.

**Keywords:** Oral health, health belief model, perceived benefit

## Korespondensi:

Weni Irma Suryani. Faculty of Public Health, Universitas Veteran Bangun Nusantara Sukoharjo, Indonesia. Jl. Letjen Sudjono Humardani, Sukoharjo, Central Java 57521, Indonesia. Email: weniirmas@gmail.com. Mobile: +62822- 801917121.

**Cite this as:**

Suryani WI, Haryanti T, Sartika I (2025). Meta-Analysis: The Effect of HBM-Based Health Education on Improving Oral Health in Students. J Health Promot Behav. 10(02): 179-190. https://doi.org/10.26911/thejhpb.2025.10.02.05.



## BACKGROUND

Health is the most important part of human life. Both physically and spiritually that allows everyone to live socially and economically productively. Health that needs to be considered in addition to general body health, also dental and oral health, because dental and oral health can affect the overall health of the body. In other words, dental and oral health is an integral part of the overall health of the body which cannot be separated from the health of the body in

general (Putri & Suri 2021).

Dental health or what is now better known as oral health is the freedom of the teeth and mouth from pain or disease that makes it not function normally. Diseases of the teeth and mouth are one of the diseases that many humans suffer from. Dental and oral health is a part of body health that cannot be separated from each other because it will affect the overall health of the body. Most people do not realize that the beginning of the onset comes from oral cavity health. This is influenced by people's behavior that does not care about dental and oral hygiene which has become a habit (Agusta et al., 2015),

Oral and dental health can reflect overall body health, including signs of nutritional deficiencies and other disease symptoms in the body. Problems with oral and dental health can negatively impact daily life, including a decline in general health, reduced self-confidence, and disruptions in performance and attendance at school or work (Bintari et al., 2022).

Dental and oral health is often not a priority for everyone. In fact, teeth and mouth are the gateway for germs and bacteria to enter so that they can interfere with the health of other organs of the body. Various bacteria can enter through the mouth and teeth, this vital component must be kept clean. The tongue, sublingual glands, tonsils, oropharynx, parotid gland, submaxillary gland, uvula, and other organs are all located in the mouth. Since many common diseases have symptoms that can be seen there, the mouth is a very important organ of the body and is sometimes referred to as a mirror of oral health. Children often have lower oral hygiene than adults (Artami 2022).

Basic Health Research Data (Riskesdas) 2018 shows that 57.6% of Indonesians have dental and oral problems and only about 10.2% of Indonesians get services from dental medical personnel. Based on age group, the largest proportion of dental and oral problems is the age group of 5-9 years (67.3%) with 14.6% having received treatment by dental medical personnel (Ministry of Health of the Republic of Indonesia, 2018).

The factor that has a great influence on the disease is the behavioral factor. One way to change behavior is to intervene through education to increase children's knowledge. Dental and oral health education is one of the important efforts that can be made to improve children's knowledge and skills in maintaining their dental and oral health, including how to brush their teeth properly and correctly. This education needs to be given to children from an early age, especially at school age. School-age children (6-12 years old) are in a period of easy acceptance and adoption of a behavior into a habit, including the habit of brushing their teeth correctly and regularly (Ndoen & Ndun, 2021).

One of the factors that affect dental and oral health is the level of knowledge, attitude and action (Susanti et al., 2021). Dental health behaviors include knowledge, attitudes and actions related to healthy concepts and toothache and prevention efforts (Rahayu et al., 2014)

The Health Belief Model explains an individual's perception or belief in determining the attitude of doing or not doing health behavior. Individual beliefs or perceptions can determine an individual's decision to plan an action in an individual. Perception or belief is obtained from experience, knowledge and information obtained so that individuals are able to decide to take action (Abraham & Sheeran, 2015).

The Health Belief Model explains why individuals make decisions to do or not to engage in healthy behaviors. The variables

assessed were about the individual's desire to avoid disease, as well as the individual's belief in preventing the disease. The Health Belief Model functions to describe healthy behaviors that are determined by an individual's beliefs in healthy living behavior, then the individual will implement healthy behavior in disease prevention measures using available health facilities. The Health Belief Model is used to predict individual actions related to health (Siddiqui et al., 2018).

This study aims to analyze previous primary studies in assessing the influence of HBM-based health education on oral health in students.

## SUBJECT AND METHOD

**1. Study Design**

The meta-analysis was carried out with the flow of PRISMA diagrams using PubMed, Google Scholar, Science Direct and Scopus databases. With keywords including: "Oral health" AND "Health Belief Model" AND "Students".

**2. Meta-Analysis Steps**

Meta-analysis is carried out in 5 steps as follows:

a. Formulate research questions in PICO format (Population, Intervention, Comparison, Outcome).
b. Search for primary study articles from various electronic and non-electronic databases such as PubMed, Science Direct, Google Scholar, Scopus, and so on.
c. Conducting screening to determine exclusion inclusion criteria and conducting critical assessments
d. Extract data from primary studies and synthesize effect estimates using the RevMan 5.3 application.
e. Interpreting results and drawing conclusions.

**3. Inclusion Criteria**

Full paper article with Randomized Control Trial study, the subject of the study is a student, the measure of the relationship used is Mean SD, the outcome of the study is the Perceived Benefits and the Perception of Severity on Oral Health.

**4. Exclusion Criteria**

Articles are published in other than English. The outcome of the study was not knowledge and perception of the severity of obesity prevention, and the article was published before 2014.

**5. Variable Operational Definition**

**Oral Health** is the healthy state of hard tissue and soft tissue of teeth and related elements in the oral cavity that allow individuals to eat, speak and interact socially without dysfunction, aesthetic disorders, and discomfort due to disease, occlusion irregularities and tooth loss so that they are able to live socially and economically productively.

**HBM** is a model used to describe individual beliefsin healthy living behaviors, so that individuals will carry out healthy behaviors, these healthy behaviors can be in the form of preventive behaviors and the use of health facilities.

**Perception of Benefit is** a person's perception of the effectiveness of various measures available to reduce the threat of disease

**Perception of severity** is a person's feelings about the seriousness of contracting a disease. One considers medical consequences (e.g., death, disability) and social consequences (e.g., family life, social relationships) when evaluating the severity

**6. Instrument**

The quality assessment in this study used a critical assessment checklist from the Randomized Control Trial study checklist.

**7. Data Analysis**

The articles in this study were collected according to the PRISMA diagram flow and analyzed using the Review Manager 5.3

application. The analysis was carried out by calculating the effect and consistency value of heterogeneity ($I^2$) from the selected research results.

## RESULTS

The article search process is carried out through several journal databases which include PubMed, Google Scholar, Science Direct and Scopus. The review process of related articles can be seen in the PRISMA flow diagram in Figure 1. Research related to the influence of HBM-based education on the perception of benefits and perceptions of the severity of oral health in students consisted of 6 articles from the initial search process gave results of 8,880 articles, after the process of deleting published articles, 4,684 articles were obtained with 340 of them eligible for full text review as many as 6 articles that met the quality assessment were included in the quantitative synthesis of theUse meta analysis. Figure 2 shows research articles that originated from the continent of Asia.

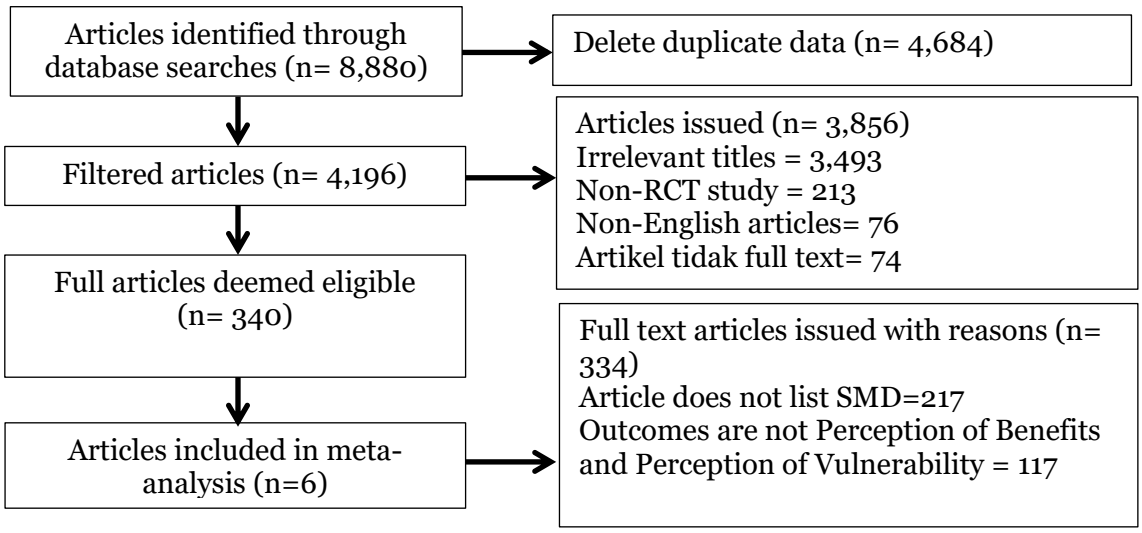


**Figure 1. Prisma flow diagram the effect of HBM-based health education on improving oral health in students**


**Figure 2. Map of the research distribution towards HBM-based education on oral health in students**

The assessment of research quality was carried out quantitatively, where this study used research quality assessment for randomized control trial research. The results of the research quality assessment can be seen in the Table 1.

**Table 1. Results of Quality Assessment of Randomized Control Trial Study The Effect of HBM-Based Health Education on Improving Oral Health in Students**

| Writer (Year) | Question Criteria | | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | | 2 | | 3 | | 4 | | 5 | | 6 | |
| | a | b | c | d | a | b | a | b | a | b | c | a | b | |
| Mohammadkhah et al. (2022) | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 22 |
| Vaezipour et al. (2018) | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 2 | 2 | 2 | 21 |
| Sanaeinasab et al. (2022) | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 1 | 0 | 0 | 2 | 2 | 2 | 21 |
| Peyman et al. (2015) | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 22 |
| Xiang et al. (2021) | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 23 |
| Ashoori et al. (2021) | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 24 |

**Answer score description:**
0= No
1= Hesitant
2= Yes

**Description of the question criteria**

1 **Formulation of Research questions in the acronym PICO**
A = Is the population in the primary study the same as the population in the PICO meta-analysis?
B = Is the operational definition of intervention, i.e. exposure status in primary studies the same as the definition intended in the meta-analysis?
C = Is the operational definition of comparison used by the primary study the same as the scheme planned in the meta-analysis? In RCTs, comparators can obtain placebo or standard therapy.
D = Is the operational definition of the outcome variable studied in the primary study the same as that planned in the meta-analysis?
2 **Methods for selecting research subjects**
A = Is the sample selected from the population so that the sample is representative of the population?
B = Is the allocation of subjects into experimental and control groups done by randomization? Random allocation is useful for controlling the influence of all confounding factors, both known and unknown by the researcher.
3 **Methods for measuring exposure (intervention) and outcome variables (outcomes)**
A = Were the interventions and outcome variables measured with the same instruments in all primary studies? If the outcome variable is measured with an instrument that Different, then the effect measure used in the meta-analysis must be the standardized, for example Effect Size (Standardized Mean Difference).
B = If the variable is measured in a categorical scale, whether the cutoff or category is used
the same between primary studies?
4 **Design-related bias**
A = Is double-blinding carried out, i.e. the research subject and the research assistant who help measure the outcome variable do not know the status of the intervention of the research subject?
B = Is there no possibility of "Loss-to-Follow-up Bias"?

C = Whether the primary study researcher has made efforts to prevent or address such bias (e.g., choosing highly motivated, easy-to-follow subjects, or incentivizing subjects so they don't drop out)

5 **Statistical analysis methods**

A = Were the outcome data compared between the experimental group and the control group after the intervention? Because the research subjects have been randomly allocated into
The experimental group and the control group before the intervention, then the two groups were comparable in the distribution of confounding factors before the intervention, so that for
Determining the effect of the intervention was sufficient by comparing the outcomes of the two groups after the intervention.

B = Are all data analyzed according to the randomization results? Randomization performed before the intervention was only effective in controlling the influence of confounding factors if all data were analyzed according to randomization.

6 Conflict of Interest

= Is there no possibility of conflict of interest with the research sponsor, which causes bias in concluding the research results?

**Table 2. Summary of the randomized control trial study in a meta-analysis with each PICO (N=829)**

| Author (Year) | Country | Sample | P | I | C | O |
|---|---|---|---|---|---|---|
| Mohammadkh *et al.* (2022) | Iran | 42 | Students aged 9-12 | HBM-based education | No education given | Perceived Benefits |
| Vaezipour *et al.* (2018) | Iran | 50 | 7th graders | HBM-based education | Only given training on brushing teeth | Perceived Benefits, Perceived Severity |
| Sanaeinasab *et al.* (2022) | Iran | 55 | 6-12 year olds | HBM-based nutrition and physical activity education | Given routine education not based on HBM | Perceived Benefits, Perceived Severity |
| Peyman *et al.* (2015) | Iran | 30 | 5th graders | HBM-based healthy lifestyle education | No education given | Perceived Benefits, Perceived Severity |
| Xiang *et al.* (2021) | Hongkong | 547 | School teens | HBM-based education | Given books and leaflets about oral health | Perceived Benefits, Perceived Severity |
| Ashoori *et al.* (2021) | Iran | 105 | 5th & 6th graders | HBM-based education | No education given | Perceived Benefits, Perceived Severity |

**Table 3. SMD The Influence of Perceived Benefit on Oral Health**

| Penulis (Tahun) | Intervensi | | Control | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| Mohammadkhah *et al.* (2022) | 27.14 | 10.87 | 24.27 | 6.66 |
| Vaezipour *et al.* (2018) | 19.60 | 3.10 | 18.80 | 3.20 |
| Sanaeinasab *et al.* (2022) | 11.5 | 1.3 | 10.4 | 1.6 |
| Peyman *et al.* (2015) | 36.2 | 4.1 | 33.7 | 3.8 |
| Xiang *et al.* (2021) | 4.04 | 0,65 | 3.91 | 0,7 |
| Ashoori *et al.* (2021) | 19.9 | 3.7 | 18.6 | 3.5 |

In Table 3. It shows that the estimated effects on each primary study that will be included in this meta-analysis study are different. The primary research data that has been extracted is then carried out quantitative synthesis meta-analysis using RevMan 5.3.

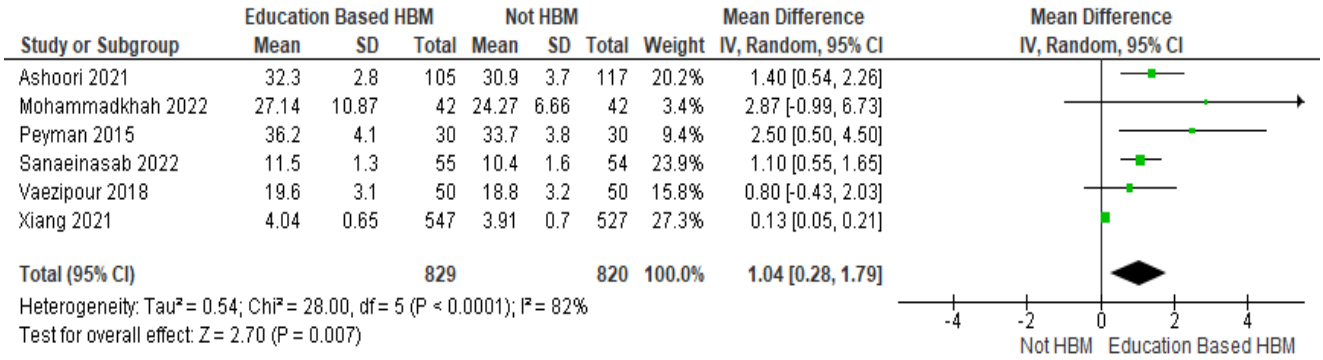


**Figure 3. Forest plot of the effect of perceived benefit on oral health in students**

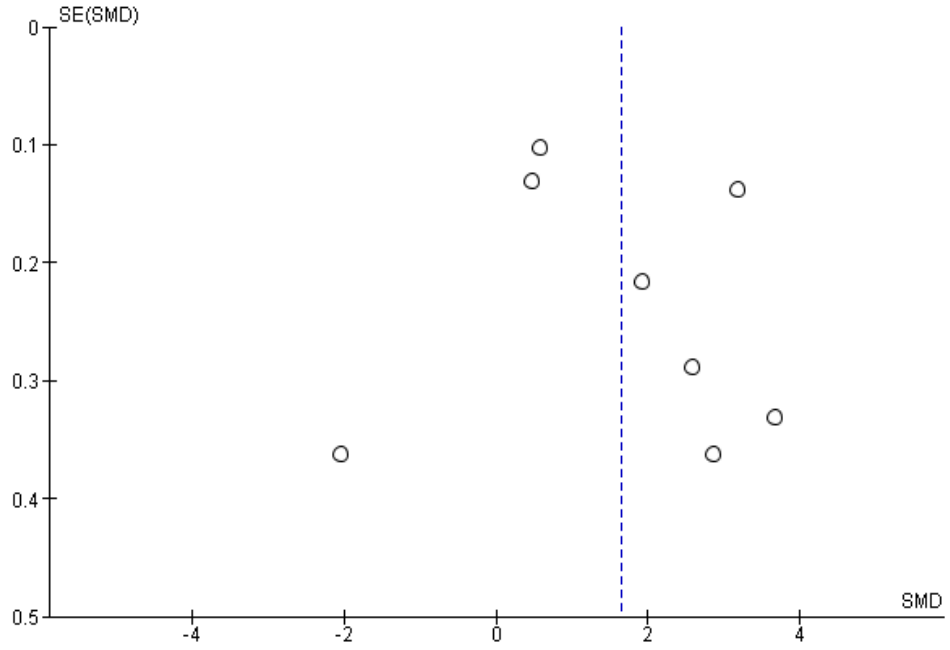


**Figure 4. Funnel plot of the effect of perceived benefit on oral health in students**

Forest plot Figure 3. shows that there is an influence of HBM-based education on the perception of benefits. Students who received HBM-based education had a higher perception of benefits for improving oral health 1.04 times compared to students who did not receive HBM-based education, and the effect was statistically significant (SMD= 1.04; CI 95%= 0.28 to 1.79; p=0.007). Forest plot Figure 3. shows heterogeneous effect estimates ($I^2$=82%; p<0.001). Thus, the average calculation of the effect estimate uses the random effect model approach.

The funnel plot in Figure 4 shows the distribution of the estimated effect of the study more to the right than to the left of the vertical line of the average estimate, thus the funnel plot shows a publication bias because the distribution of the effect is skewed to the right of the average vertical line, on the same side as the location of the star shape (diamond) average effect estimation, in the forest plot of figure 4, the publication bias tends to overestimate the effect next to it (over estimate).

**Table 4. SMD The Influence of Perceived Severity on Oral Health**

| Author (Year) | Intervention | | Control | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| Vaezipour *et al.* (2018) | 31.00 | 8.10 | 27.70 | 3.90 |
| Sanaeinasab *et al.* (2022) | 26.1 | 2.9 | 24.0 | 3.7 |
| Peyman *et al.* (2015) | 42.7 | 3.6 | 39.4 | 4.7 |
| Xiang *et al.* (2021) | 3.75 | 0.85 | 3.56 | 0.91 |
| Ashoori *et al.* (2021) | 19.9 | 3.7 | 18.6 | 3.5 |

Table 4 shows that the estimated effects on each primary study that will be included in this meta-analysis study are different. The primary research data that had been extracted was then meta-analyzed quantitative synthesis using RevMan 5.3.

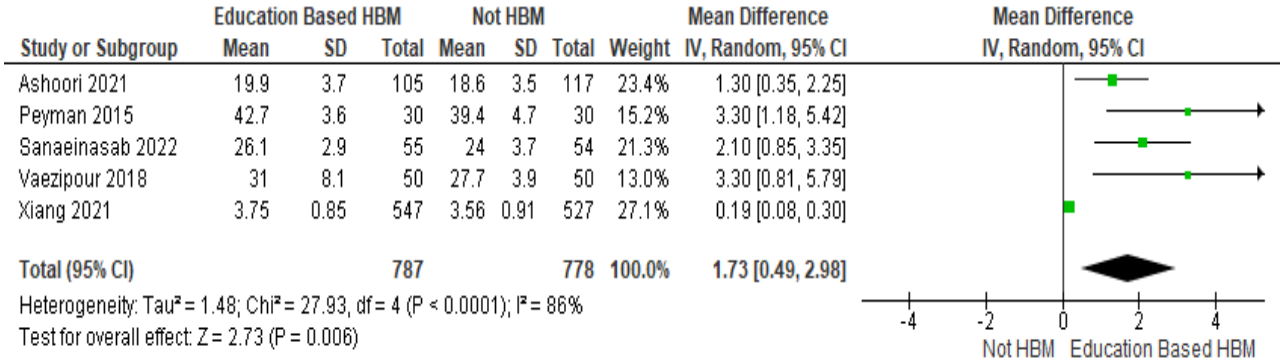


**Figure 5. Forest plot of the effect of perceived severity on oral health in students**

Forest plot Figure 5. shows that there is an influence of HBM-based education on the perception of severity. Students who received HBM-based education had a higher perception of severity to improve oral health 1.73 times compared to students who did not receive education, and the effect was statistically significant (SMD= 1.73; CI 95%= 0.49 to 2.98; p=0.006). Forest plot Figure 3. showed a heterogeneous effect estimate ($I^2$= 86%; p<0.001). Thus, the average calculation of the effect estimate uses the random effect model approach.

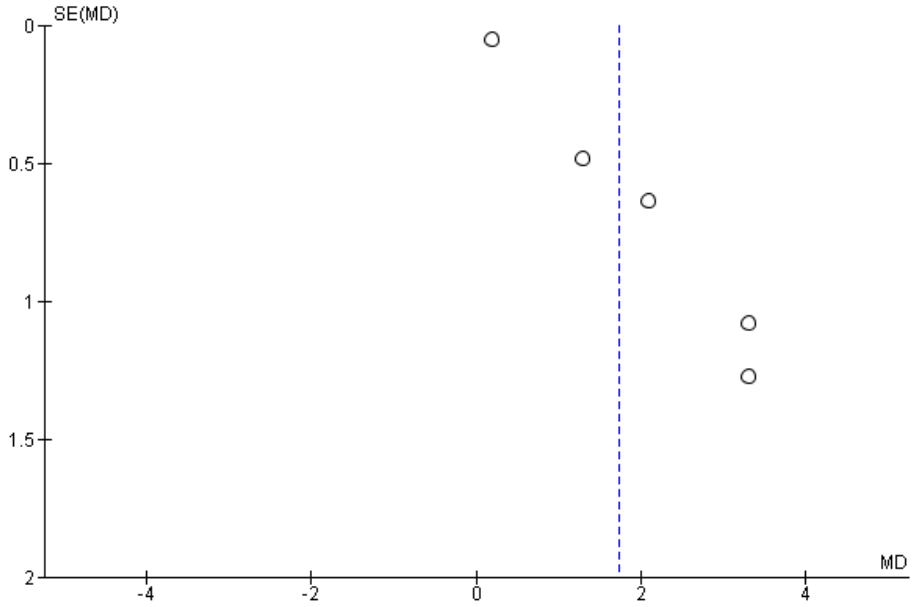


**Figure 6. Funnel plot of the the effect of perceived benefit on oral health**

The plot funnel in Figure 6 shows the distribution of the study effect estimate more to the right than to the left of the estimated average vertical line, thus the plot funnel shows a publication bias because the distribution of the effect is tilted to the right of the average vertical line, on the same side as the star shape (diamond) average effect estimation, in the forest plot of figure 4, the publication bias tends to overestimate the effect.

## DISCUSSION

### 1. Association between perceived benefit and oral health

There were six articles with a randomized controlled trial design conducted in Iran, involving a total of 829 research participants. A meta-analysis of these six studies concluded that students who received education based on the Health Belief Model (HBM) had a 1.04-fold higher perceived benefit in improving oral health compared to those who did not receive such education. This effect was statistically significant (SMD= 1.04; 95% CI= 0.28 to 1.79; p= 0.007).

This finding is consistent with research by Sulastri (2018), which showed a significant difference in dental and oral hygiene behaviors before and after health education. After receiving education on personal dental and oral hygiene, the majority of respondents (83.3%) exhibited good behavior, while only 16.7% still showed poor hygiene practices.

Perceived benefit refers to an individual's belief in the value or effectiveness of a behavior in reducing the risk of illness. When a person believes that a certain action can reduce their vulnerability to health problems or lessen their severity, they are more likely to engage in the behavior—even if the objective evidence for the action's effectiveness is limited. Before receiving education, many students in grades 3 and 4 exhibited poor hygiene behavior due to a lack of information, highlighting the importance of health education in shaping healthy habits.

### 2. Effect of percieve severity on oral health

A meta-analysis of 5 randomized control trial studies concluded that students who

received HBM-based education had a higher perception of severity to improve oral health 1.73 times compared to students who did not receive education, and the effect was statistically significant (SMD= 1.73; CI 95%= 0.49. These results can have a positive effect on the behavior of maintaining oral health. The results of this analysis explain that the perception of severity has an influence, thus encouraging a person to maintain oral health so as to avoid the risk of disease caused.

This study is in line with There is a significant relationship between knowledge about dental health and dental care behavior. The value of the correlation coefficient in the Spearman Rho test of 0.652 shows that there is a strong and unidirectional correlation between knowledge about dental health and dental care behavior so that it can be assumed that the better the knowledge about dental health, followed by good dental care behavior (Pratiwi, 2022). The Health Belief Theory regarding the perception of the severity of a disease can cause individuals to have an attitude to be able to make treatment efforts. Individuals will take action to protect themselves if they feel that their condition is in serious trouble. In this study, it shows that individuals will take care of dental health if they feel that not maintaining oral health can be a serious problem for their health in the future. The same research from the dental and oral hygiene status of SMA Negeri 9 Manado students showed that children who had good knowledge had a 2.2 times chance of having a good dental and oral hygiene status. Health education is a process of change in a person that is linked to the achievement of individual and community health goals. The purpose of health education is to change children's behavior so that they behave in a healthy life. So that it can prevent oral health problems and prevent the severity that occurs in the mouth.

Health education for school students about dental health is very important in increasing knowledge, this can have a positive effect in motivating students in maintaining their dental health so that it can help students in overcoming and preventing dental health problems, therefore, it is hoped that the health education carried out will provide positive changes in children. Because individuals will take action to protect themselves if they feel that their condition is in serious trouble. In this study, it shows that individuals will maintain oral health somewhat without causing serious problems to their health.

## AUTHOR CONTRIBUTION

Weni Irma Suryani as a researcher who chooses topics, searches and summarizes research data. Titik Haryanti and Iik Sartika analyzed the data and reviewed the research documents.

## FUNDING AND SPONSORSHIP

This study is self-funded.

## CONFLICT OF INTEREST

There are no conflicts in this study.

## ACKNOWLEDGMENT

We would like to thank the database providers PubMed, Google Scholar, and Science Direct.

## REFERENCES

Abraham C, Sheeran P (2014). The Health Belief Model, Cambridge Handbook of Psychology, Health and Medicine, Second Edition. 97–102. DOI: 10.101-7/CBO9780511543579.022

Agusta MV, Ismail A, Firdausy MD (2015). Hubungan pengetahuan kesehatan gigi dengan kondisi (The relationship between dental health knowledge and conditions). Mendali Jurnal, 2(1): 64–

68. DOI: 10.30659/medali.v2i1.453.
Ashoori F, Karimi M, Seif M (2022). Comparison of the effect of mothers and students' education on the promotion of oral health behaviours in female students, using the health belief model. Int J Dent Hyg. 20(4): 601-608. doi: 10.1111/idh.12564.
Artami NW (2022). Gambaran Pengetahuan Tentang Pemeliharaan Kesehatan Gigi Dan Mulut Pada Siswa Kelas V SDN 5 Kerta Kecamatan Payangan Kabupaten Gianyar (Overview of Knowledge about Dental and Oral Health Maintenance in Class V Sdn 5 Kerta Students, Payangan District, Gianyar Regency). Jurnal Kesehatan Gigi, 3(4), 49–58.
Bintari T, Prasetyowati S (2022). Peningkatan Pengetahuan Kader UKGS Tentang Cara Menjaga Kesehatan Gigi Dan Mulut Melalui Penyuluhan (Increasing the Knowledge of UKGS Cadres on How to Maintain Dental and Oral Health Through Counseling). Indonesian Journal of Health and Medical. 2(3): 361–366.
Kementerian Kesehatan RI. 2018. Hasil Riset Kesehatan Dasar (Riskesdas) 2018. Jakarta: Badan Penelitian dan Pengembangan Kesehatan Kementerian RI.
Mohammadkhah F, Ramezankhani A, Atashpoosh A, Ahmady Moghadam F, Bakhtiar M, Khani Jeihooni A. Effect of training based on health belief model and behavioral intention on improving dental and oral self-care behavior in 9-12-year-old Iranian female students. BMC Oral Health. 2022 Nov 19;22(1):515. doi: 10.1186/s12903-022-02552-0.
Ndoen E, Ndun HJN (2021). Perbaikan Kesehatan Gigi dan Mulut melalui Pemberian Cerita Audiovisual dan Simulasi pada Anak (Improving dental and oral health through audiovisual stories and simulations to children). Jurnal Pengabdian Kepada Masyarakat Undana, 15(1): 1-7. https://doi.org/10.35508/jpkmlppm.v15i1.4876
Pratiwi N (2022). Hubungan tingkat pengetahuan tentang kesehatan gigi dengan perilaku perawatan gigi pada anak kelas V di Sekolah Dasar Negeri 1 Gianyar (The level of knowledge about dental health with dental care behavior in grade V children at Elementary School 1 Gianyar). Insitut Teknologi Dan Kesehatan Bali.
Peyman N, Samiee Roudi K (2015). The effect of education based on the theory of planned behavior on caries prevention of permanent teeth in fifth grade students in Khaf City. J Mash Dent Sch. 39(2):123e36.
Putri VS, Suri M (2022). Pentingnya Kesehatan Gigi dan Mulut pada Anak Usia Sekolah di RT 10 Kelurahan Murni Kota Jambi (The Importance of Dental and Oral Health in School-Age Children in RT 10 Murni Village, Jambi City), Jurnal Abdimas Kesehatan. 4(1): 39. https://doi.org/10.36565/jak.v4i1.207.
Rahayu C, Widiati S, Widyanti N (2014). The relationship between knowledge, attitudes, and behaviors on the maintenance of dental and oral hygiene with pre-elderly periodontal health status in Posbindu, Indihiang District, Tasikmalaya City. Majalah Kedokteran Gigi Indonesia, 21(1), 27. https://doi.org/10.22146/majkedgiind.8515
Sanaeinasab H, Saffari M, Taghavi H, Karimi ZA, Rahmati F, Al Zaben F, Koenig HG (2022). An educational intervention using the health belief model for improvement of oral health

behavior in grade-schoolers: a randomized controlled trial. BMC Oral Health. 22(1):94. doi: 10.1186/s12903-022-02132-2.

Siddiqui TR, Ghazal S, Bibi S, Ahmed W, Sajjad SF (2016). Use of the Health Belief Model for the Assessment of Public Knowledge and Household Preventive Practices in Karachi, Pakistan, a Dengue-Endemic City. PLoS Negl Trop Dis. 10(11):e0005129. doi: 10.1371/journal.pntd.0005129.

Sulastri (2018). Pengaruh Pendidikan Kesehatan Terhadap Sikap dan Perilaku Personal hygiene Gigi dan Mulut Anak Usia Dekolah di SD Negeri Payung (The Influence of Health Education on Attitudes and Behaviors of Personal Hygiene of Dental and Oral Children of Dekolah Age at SD Negeri Payung). Jurnal Care. 6(1).

Susanti E, Anang, Rismayani L (2021). Pengetahuan Dan Perilaku Kesehatan Gigi Dengan Periodontitis Pada Pasien Puskesmas Kasomalang Subang (Knowledge and Behavior of Dental Health with Periodontitis in Patients of Kasomalang Subang Health Center). 2(1). Doi: 10.36082/Jdht.V2i1.-193.

Vaezipour Z, Gharlipour Z, Mohebi S, Sharifirad G (2018). Effect of Education on Promoting Preventive Behaviors of Oral and Dental Problems: Applying Health Belief Model. Health Educ Health Promot. 6(4):135-141. http://-hehp.modares.ac.ir/article-5-13448-en.html

Xiang B, McGrath CPJ, Wong HM (2022). The Efficacy of a Multi-Theory-Based Peer-Led Intervention on Oral Health Among Hong Kong Adolescents: A Cluster-Randomized Controlled Trial. J Adolesc Health. 70(2):267-274. https://doi.org/10.1016/j.jadohealth.2021.08.001.