

---

# The Effect of the Snowball Throwing Method on Changes in Brushing Behavior in 4th Grade Children at Surabaya

Eppy Setiyowati, Fitriyah

Faculty Nursing and Midwifery, University Nahdlatul Ulama Surabaya, Surabaya, Indonesia

**Email address:**

[eply@unusa.ac.id](mailto:eply@unusa.ac.id) (E. Setiyowati)

**To cite this article:**

Eppy Setiyowati, Fitriyah. The Effect of the Snowball Throwing Method on Changes in Brushing Behavior in 4th Grade Children at Surabaya. *Central African Journal of Public Health*. Vol. 5, No. 6, 2019, pp. 287-291. doi: 10.11648/j.cajph.20190506.20

**Received:** September 16, 2019; **Accepted:** October 28, 2019; **Published:** November 13, 2019

---

**Abstract:** Tooth decay is experienced by many children, such as cavities, tartar, inflammation of the gums, sensitive teeth, and bad breath, the cause is a mistake when brushing of teeth. The snowball throwing learning method is cooperative towards changes in brushing behavior, because the learning model is effective in training students to brush their teethes, the aim of the researchers was to analyze the effect of the snowball throwing method on changes in brushing behavior in 4th grade children at Surabaya. The research method is Pre-Experimental with approach to One group pre-post tes design, the number of samples is 65 students from grade 4 at Surabaya. The technical sampling uses simple random sampling, data collection uses a questionnaire, then the data is processed and analyzed using paired T-test ( $\alpha = 0.05$ ). The results showed that after a paired T-test statistical test, the value of  $p = 0.000$  and  $\alpha = 0.05$  means that  $p < \alpha$ ,  $H_0$  is rejected, meaning there is an influence of the snowball throwing method on changes in brushing behavior of school children at Surabaya. Conclusion of the study, the snowball throwing method provides an increase in the behavior of brushing teeth, that the students practice brushing their teeth twice in the morning and night before going to bed properly. Suggestion, the snowball throwing method can be applied in schools for learning activities.

**Keywords:** Snowball Throwing, Brushing Teeth, Behavior

---

## 1. Introduction

Oral and dental health is important to get special attention from health workers both doctors and dental nurses. Tooth decay is experienced by children, such as cavities, tartar, and inflammation of the gums, sensitive teeth, and even bad breath. The reason is because of excessive sugar consumption, dental care that is often overlooked, and brushing teeth that are rarely done both at home and at school. The lack of knowledge of children about the importance of brushing their teeth, children do not brush their teeth at night because they feel enough to brush their teeth in the morning, that when they are sleeping at night the bacteria in the mouth are active, because there is no more flow saliva which functions as a natural cleanser.

Based on research in the journal Dian Nurafifah in 2016 as many as 60% of Indonesia's population suffered from dental disease and as many as 89% of Indonesian children under the age of 12 suffered from dental and oral diseases. The application of tooth brushing has been done to children of 3

years of age (94.7%), and only as big as (2.3%) [19]. From the first study conducted by researchers on October 8, 2018 on 10 students randomly at Surabaya, there were 5 students who said they were lazy to brush their teeth, 3 students said they rarely brushed their teeth and 2 students said they were brushing their teeth morning and evening, while at night before going to bed no one brushes his teeth.

Several factors that influence the habit of brushing your teeth can be due to age, gender, knowledge and work of parents. Brushing teeth properly and correctly has never been practiced at Surabaya, because the place is not available and the condition of the bathroom is not clean [8].

The government's efforts to overcome the high incidence of dental problems, especially in children, one of them with the approach set by WHO, in the following order: (1) Clinical examination to detect the presence of lesions, (2) Evaluate the cause of the lesion, (3) Control the existence of identified risk factors, (4) treatment of tooth decay, and (5) dental maintenance program [12].

One method used in conducting health education is through

learning media. A good method is one that can lead to two-way communication or interactivity. Each activity will be developed through a method that is suitable with the learning objectives. Some research methods are related to changes in the behavior of brushing teeth very much, such as using picture book media conducted by researcher to attract children's attention, there are also several other methods such as counseling, story telling, picture books and playing. In this case the researcher is interested in conducting research with one of the learning models of throwing snowballs (*snowball throwing*) [12].

Based on the background above the researchers were interested in connecting the snowball throwing method to brushing teeth, because there was no research that connected brushing with the Snowball Throwing method. The researcher finally wants to connect the two into a study entitled "The Effect of Snowball Throwing Methods on Changes Brushing Behavior in 4<sup>th</sup> Grade Children at Surabaya".

The general objective of this study was to analyze the effect of snowball throwing on brushing behavior in 4th grade school children at Surabaya. Whereas the specific objective of this study was to identify the behavior of brushing teeth in 4<sup>th</sup> grade school children at Surabaya before and after the snowball throwing method was carried out.

## 2. Method

This study uses Pre-Experimental research with One group pre-post test design approach. This type of research seeks to reveal the effect of cause and effect by involving a group of subjects by giving a pre-test about brushing your teeth before giving a snowball throwing learning method. After the snowball throwing learning method has been given, then a post-test is done about brushing your teeth. The population in this study was all 4th grade students at Surabaya which amounted to 78 students. The sample used in this study was 65 students. The sampling method is using probability sampling method with simple random technique which is done by randomizing individual population members.

The independent variable (free) in this study is the snowball throwing method on tooth brushing and the dependent variable (bound) is a change in the behavior of brushing teeth. The inclusion criteria in this study were respondents who could communicate well and who were willing to participate in the study. while the exclusion criteria are respondents who cannot be present during the study and who cannot reading.

The data source used in this study is the dependent variable, namely the behavior of brushing teeth using a questionnaire sheet consisting of knowledge questions, 11 attitude questions and 11 action questions which when collected into a behavior [12].

Data that has been obtained by researchers, then collected and put together. The data is then processed starting from the Editing process, which is to provide the code on each respondent's answer sheet, then Processing is analyzed using SPSS, and Cleaning is checking the data again. Then enter the data in tabulating, arranged into the form of presentation

then presented in the form of a frequency distribution table.

Then the questionnaire was tested for normality. The data obtained were analyzed by the t-test with a significance level of  $\alpha = 0.05$ . If the results of the statistical test show  $p < 0.05$  then  $H_0$  is rejected which means there is an effect of snowball throwing on changes in brushing behavior in 4th grade elementary school children at Surabaya.

## 3. Results and Discussion

**Table 1.** Frequency distribution of respondents based on age in 4th grade school children at Surabaya.

Age (year)	Frequency	Percentage (%)
9	7	10.8 %
10	44	67.7 %
11	14	21.5 %
Total	65	100%

Source: data primer, Maret 2019

Based on table 1 shows that of the 65 respondents most (67.7%) of respondents in this study were 10 years old.

**Table 2.** Frequency distribution of respondents by sex in 4th grade school children at Surabaya.

Gender	Frequency	Percentage (%)
Female	34	52.3 %
Male	31	47.7 %
Total	65	100 %

Source: data primer, Maret 2019

Based on table 2 shows that of the 65 respondents most (52.3%) respondents in this study were female.

**Table 3.** Frequency distribution of respondents based on brushing their teeth before going to bed in 4th grade school children at Surabaya.

Brushing Teeth Before Sleep	Frequency	Percentage (%)
Yes	25	38.5 %
Sometime	20	30.8 %
No	20	30.8 %
Total	65	100 %

Source: data primer, Maret 2019

Based on table 3 shows that of the 65 respondents almost half (38.5%) of respondents in this study brushed their teeth before going to bed.

**Table 4.** Frequency distribution of respondents based on the results of brushing behavior during the pre-test of the snowball throwing method in 4th grade school children at Surabaya.

Tooth Brushing Behavior Changes ( <i>pre test</i> )	Frequency	Percentage (%)
Not very good	0	0 %
Not good	0	0 %
Pretty good	6	9.2 %
Well	30	46.2 %
Very good	29	44.6 %
Total	65	100 %

Source: data primer, Maret 2019

Based on the table 4 show that of the 65 respondents almost half (49,2%) od respondents in this study the results of brushing behavior during the pre-test of the snowball throwing method in 4th grade school children at Surabaya.

**Table 5.** Frequency distribution of respondents based on the results of brushing behavior during the post-test of the snowball throwing method in 4th grade school children at Surabaya.

Behavior of Brushing of Teeth ( <i>pre test</i> )	Frequency	Percentage (%)
Not very good	0	0 %
Not good	7	10.8%
Pretty good	32	49.2%
Well	26	40.0%
Very good	0	0 %
Total	65	100 %

Source: data primer, Maret 2019

Based on Table 5 show that of the result of brushing behavior during the post test of the snowball throwing method almost half (46.2%) of respondent in 4th grade school children at Surabaya

## 4. Discussion

1. Behavior of brushing teeth during the pretest of the snowball throwing method on the behavior of brushing teeth.

Teeth brushing behavior on respondents during the pre test snowball throwing method based on table 4 on brushing behavior found that almost half (49.2%) of students behaved reasonably well, the pre test question was measured using a questionnaire with the lowest score of 0 and the highest score of 100. From the data obtained showed that on average students do not know about the correct way to brush their teeth, such as how many times brushing their teeth in a day, brushing their teeth before going to bed at night and the impact of not brushing their teeth, According to brushing teeth may seem easy to do, but without realizing it many mistakes are made during brushing your teeth and will cause damage to the teeth [10].

The average value of brushing behavior in almost half (49.2%) is quite good due to a lack of knowledge on how to brush your teeth well in school and have never received counseling about brushing your teeth. This is in accordance with that this behavior is influenced by other factors such as knowledge, age, information obtained, and access to health [12]. According to brushing your teeth should be done with short and soft movements and with a mild pressure, center on the area where there is plaque on the edge of the gums (border of teeth and gums), the surface of the teeth chewing on the fissure or difficult gaps to be reached and at the back [19].

Based on table 1, some students (67.7%) aged 10 years where at that age were the time to know the relationship and began to be able to analyze something so that the knowledge of brushing teeth at an early age can continue to be brought to old age and as a person grows older his knowledge will also increase. This is in line with the opinion that age can

influence capture power, where at the age of school children tend to be more receptive to knowledge and when growing up the knowledge gained will be better so that attitudes and behavior will also be better [23].

Based on table 2, almost a portion of students (52.3%) are female, gender also influences behavior change, because women usually pay more attention to what is explained, this is according to the effectiveness of tooth brushing activities is influenced by gender, things this is because girls are more easily directed and more skilled in brushing teeth than boys [21].

2. Behavior of brushing teeth when post test the snowball throwing method about changing the behavior of brushing teeth.

The behavior of students when the post test snowball throwing method about changes in brushing behavior is found in tables 4 and 5, there was an increase from the pre-test almost half (49.2%) was good enough, and at post-test almost half (46.2%) behaved well. The results obtained show that students have begun to understand and practice good behavior activities such as brushing their teeth in the right way, and at the right time. Where is done twice a day after meals and before going to bed at night, this is in accordance with the best time to brush your teeth is after eating and before going to bed. Brushing your teeth after eating causes food scraps that stick to the surface of the teeth or between the teeth and the dirt in the gums is lifted [23]. Whereas before going to bed brushing your teeth becomes important because in a state of nighttime sleep the bacteria in the mouth are classified as active, because there is no more salivary flow that functions as a natural cleanser (self cleansing). Therefore, try to keep your teeth clean before going to bed.

From the scores obtained, almost half (46.2%) of students behave well, this shows that students are able to practice how to brush their teeth properly according to what has been learned. The maximum score is very good showing students understand and practice how to brush their teeth properly, the right time to brush their teeth, and what foods damage teeth [24]. The surrounding environment can affect the development and behavior of individuals and groups. If the environment supports a positive direction, then individuals and groups will behave positively, but if the surrounding environment is not conducive, then the individual or group will behave badly.

3. Effect of the snowball throwing method on changes in the behavior of brushing teeth.

Based on tables 4 and 5 show that of the 65 respondents during the pre-test snowball throwing method there were no students who behaved very badly, a small portion (9.2%) behaved fairly well, almost half (49.2%) behaved reasonably well and almost as impressive (40.0%) students behave well and no students behave well. Minimum score of 39 (not good) and maximum score of 74 (good). When the post test of the snowball throwing method on the behavior of brushing teeth there were no students who behaved very badly and not well, a small portion (10.8%) behaved badly, almost half

(46.2%) behaved well, almost as (44.6%) students behaved very good. In further analysis it was shown from the results of paired T-test which obtained  $p = 0.000$  which means  $p < \alpha$ , then  $H_0$  was rejected, meaning that there was the Effect of Snowball Throwing Method on Changing Tooth Brushing Behavior in School Children at SDN Jagir 1/393 Surabaya. The contingency coefficient obtained 0.742 shows that the results of this study are very strong. The snowball throwing method that has been given can influence students' behavior in brushing their teeth at SDN Jagir 1/393 Surabaya. The snowball throwing method aims to increase knowledge, change attitudes and direct students to the desired behavior. The form a positive behavior, knowledge must be realized, this is related to factors that influence knowledge, namely information. Information that has been obtained has an influence on students' knowledge [19].

## 5. Conclusions and Suggestions

### 5.1. Conclusion

Based on the results of the research analysis and discussion, it can be concluded as follows:

1. The behavior of 4th grade students at Surabaya during the pre test of the snowball throwing method on brushing behavior of 65 respondents almost half behaved quite well.
2. The behavior of 4th grade students at Surabaya during the pre-test of the snowball throwing method on changes in brushing behavior of 65 respondents was almost as good as behaving.
3. There is the influence of the snowball throwing method on changes in tooth brushing behavior in 4th grade school children at Surabaya as evidenced from the results of the Paired T-test obtained from  $p = 0.000$  which means  $p < \alpha$  then  $H_0$  is rejected.

### 5.2. Suggestion

It is hoped that given the snowball throwing method of changing brushing behavior students can understand and understand the importance of dental health and can practice it in daily activities and the snowball throwing method can be applied in schools to improve learning in students.

## Reference

- [1] Abdul Jalil. 2018. *Pengaruh Penggunaan Model Snowball Throwing Terhadap Hasil Belajar Pkn Kelas V Di Sekolah Dasar*. Artikel Penelitian. Fakultas Keguruan Dan Ilmu Pendidikan. Universitas Tanjungpura Pontianak.
- [2] AgusSuprijono. 2010. *Cooperative Learning*. Yoguakarta: Pustaka Media.
- [3] Anti Harianti. 2015. *Pengaruh Pendidikan Kesehatan Tentang Pemeliharaan Kesehatan Gigi Terhadap Pengetahuan Dan Motivasi PadaAnak Usia Sekolah Di SDN Karangdadap Kabupaten Banyumas*. Skripsi. Fakultas Ilmu Kesehatan. Universitas Muhammadiyah Purwokerto.
- [4] Depkes RI. 2012. *Laporan Kesehatan Dasar Tahun 2012 Provinsi Jawa Tengah*. Jakarta: Badan Penelitiandan Perkembangan Depkes RI.
- [5] Depkes RI. 2014. *Pelayanan Asuhan Kesehatan Gigi danMulut*. Jakarta.
- [6] Dewi, Sekar Arum. 2011. *Hubungan Pola Pemberian Makanan Dan Kebersihan Mulut Dengan Indeks Keparahan Karies Anak PAUD Yang PositifKaries*. Skripsi. Surabaya. Fakultas Keperawatan. Universitas Airlangga.
- [7] Dian Nurafifah. 2016. *Media Audio Visual Dan Media Kartu Bergambar Terhadap Kemampuan Menggosok Gigi Pada Anak PraSekolah*. Lamongan. Jurnal. Stikesmuhla. ac. id. Artikel Diakses Tanggal 16 September 2018.
- [8] Harianti, 2008. *Mengatasi Kegagalan Penyuluhan Kesehatan Gigi PadaAnak Dengan Pendekatan Psikologi*. Dentika Dental Journal. Vol 13. No 1. Jakarta: EGC.
- [9] Haryanti, D., Adhani, R., Asprianto, D., Dewi, I. 2014. *Efektifitas Menyikat Gigi Metode Horizontal, Vertikal, Roll Terhadap Penurunan Plak Pada Anak Usia 9-11 Tahun*. Universitas Lambung Mengkuat.
- [10] Hidayat, Rachmat, Astrit Tandriari. 2016. *Kesehatangigidanmulut*. Yogyakarta: CV Andi Offset.
- [11] Kusumawardani, Endah. 2011. *Buruknya Kesehatan Gigi Dan Mulut Memicu Penyakit Diabetes, Stroke Dan Jantung*. Yogyakarta: Siklus Hangar Creator.
- [12] Mary & Diane. 2013. *Praktek Kesehatan Gigi Masyarakat*. Jakarta: EGC.
- [13] Miftahul, H. 2014. *Model-Model Pembelajaran Dan Pembelajaran*. Jakarta: Pusaka Belajar.
- [14] Notoatmodjo, Soekidjo. 2010. *Ilmuperilaku kesehatan*. Jakarta: Rineka Cipta.
- [15] Notoatmodjo, Soekidjo. 2012. *Promosi Kesehatan Dan Perilaku Kesehatan*. Jakarta: Rineka Cipta.
- [16] Purwonto, Heri. 2012. *Pengaruh Perilaku Manusia Untuk Keperawatan*. Jakarta:EGC.
- [17] Reny Nur Widyastuti, 2015. *Pengaruh Media Buku Bergambar SOGI (Menggosok Gigi) Terhadap Pengetahuan dan Praktik Menggosok Gigi Pada Siswa Madrasah Ibtidaiyah Negeri Sumurejo Kecamatan Gunung pati Semarang*. Skripsi. Ilmu Kesehatan Masyarakat. Universitas Negeri Semarang.
- [18] Rifki, A. 2010. *Perbedaan Efektivitas Menyikat Gigi Dengan Metode Roll Dan Horizontal PadaAnakUsia 8-10 Tahun Di Medan*. Tesis. Fakultas Kedokteran Gigi. Universitas Sumatera Utara.
- [19] Riskedas, 2018. *Laporan Kesehatan Dasar*. Propinsi Jakarta: Badan Penelitian Dan Pengembangan.
- [20] Setiawati, Rahayu. 2012. *Hubungan Kebiasaan Menggosok Gigi Sebelum Tidur Malam Dengan Karies Pada Anak usia Sekolah*. Jurnal FIK. UI. [http://lontar.ui.ac.id/file/pdf/DiaksesTanggal\\_05\\_November\\_2018](http://lontar.ui.ac.id/file/pdf/DiaksesTanggal_05_November_2018).
- [21] Shoimin, A. 2014. *Model Pembelajaran Inovatif Dalam Kurikulum 2013*. Yogyakarta; AR-RUZZ Media.
- [22] Suryawati PN. 2010. *100 Pertanyaan Penting Perawatan Gigi Anak*. Jakarta: Dian Rakyat.

- [23] Susilana, Riyana. 2009. *Media Pembelajaran Hakikat Pengembangan Pemanfaatan dan Penilaian*. Bandung: CV Wacana Prima.
- [24] Novita, S., Efendi, F., Dian, P. 2012. *Pengaruh Pendidikan Kesehatan Metode Simulasi Menggosok Gigi Teknik Modifikasi Bass Dengan Keterampilan Dan Kebersihan Gigi Mulut Pada Anak MI AT-Taufiq Kelas V*. Fakultas Keperawatan. Universitas Airlangga. Journal. Unair. ac. id. Diakses.