

## Media and Volunteers' Knowledge of Malocclusion

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### Abstract

Parents' knowledge of malocclusion, which can be obtained from mass media, can affect their decision to seek orthodontic treatment for their children. However, the relationship between mass media usage and knowledge of malocclusion is unknown. Health volunteers play the role of parents in this study.

To analyze the relationship between mass media and knowledge of malocclusion in Integrated Health Posts' health volunteers in Johar Baru, Central Jakarta.

The design of this study was cross-sectional, the subjects were 67 Integrated Health Posts' health volunteers of Johar Baru, Central Jakarta, and data were obtained through questionnaires. The relationship between variables was analyzed using a chi-square test.

The majority of mass media usage level was moderately low (67.2%) and the majority of malocclusion knowledge level was high (74.6%); there was no substantial relationship between mass media and knowledge of malocclusion ( $p = 0.123$ ).

There was no significant relationship between the use of mass media and level of malocclusion knowledge in Integrated Health Posts' health volunteers of Johar Baru, Central Jakarta.

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### Introduction

Malocclusion is an abnormality in the jaw relationship and a deviation in the ideal occlusal scheme.<sup>1</sup> Malocclusion or occlusion disorder is a dental abnormality that often occurs in children.<sup>2</sup> Function-related issues, psychosocial aspects, or tissue damage, such as caries, periodontal damage, damage related to eruption, trauma related to malocclusion, or damage related to attrition, can be indications for orthodontic treatments.<sup>3</sup> Adverse effects on psychosocial health, such as low self-confidence, can be seen in children with malocclusion. Therefore, orthodontic treatment, as one of the solutions to the problem of malocclusion, can be a way to increase self-confidence and psychosocial health through facial aesthetic aspects, as well as improving dental health in general.<sup>4,5</sup>

Parents' knowledge is an important factor

in improving children's dental and oral health, including handling and avoiding malocclusion in children. The earlier parents know about malocclusion in their children, the sooner orthodontic treatment can be carried out before it becomes severe and requires more complicated orthodontic treatment. In addition to dentists' clinical decisions, parents' decisions are needed in determining orthodontic treatment in children. The views and knowledge of parents about malocclusion can affect the success of the procedure and cooperative nature of orthodontic patients. Parents' lack of knowledge can cause failure of orthodontic treatment even before it starts.<sup>6-8</sup> Knowledge can be influenced by parents' sources of information, and one example of this, which can be used to improve knowledge about dental and oral health, is mass media.<sup>9</sup> The mass media is a communication tool that can be used to communicate or disseminate information to the general public. It can be grouped into print media, electronic media, and social media.<sup>10,11</sup> In Indonesia, the use of mass media is increasing. Mass media, by nature, easily disseminates and extends information, making it an important source of data on health. For example, parents of patients can access

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information about health care and can participate in forums about health through social media. They can also discuss health problems with doctors or fellow patients. Moreover, mass media such as television and print media can be utilized as a means by doctors to promote health to the general public, including parents. Therefore, mass media is a useful tool for influencing broad public health behavior.<sup>9,12</sup>

Integrated Health Posts' health volunteers are people who volunteered and were chosen by the community to be health promoters and providers. They are trained to educate and solve community health problems.<sup>13</sup> Health volunteers are supposed to have more knowledge about health because they are the ones who disseminate information in the community. As parents, they also have an important role in educating their own children.<sup>12</sup> Therefore, parental knowledge can be represented by health volunteers' knowledge of dental and oral health problems. Parental knowledge about malocclusion is influential in determining orthodontic treatment in children. Parents can use mass media as one of the sources of information about malocclusion; however, the relationship between the level of mass media usage and knowledge about malocclusion is unknown.

One of the methods of determining the relationship is to use a questionnaire as a measurement tool; a method never utilized in previous studies. The aim of this study is to determine the level of mass media use, level of knowledge about malocclusion, and relationship of mass media and knowledge about malocclusion in Integrated Health Posts' health volunteers.

### Materials and methods

This study used observational analytical research with a cross-sectional approach. Respondents from this study were Integrated Health Posts' health volunteers in Johar Baru Village, Central Jakarta with the inclusion criteria of being health volunteers who are active in Integrated Health Posts activities, physically and mentally healthy, using mass media, 30–60 years old, secondary education level (middle school/equivalent) to high (high school/college/equivalent), housewives or retirees, and family income more than or equal to

IDR 3,648,000. Meanwhile, the exclusion criteria are Integrated Health Posts' health volunteers who themselves and whose family or close relatives have had orthodontic treatment and are not active and are not willing to complete questionnaires. The sampling technique used was consecutive sampling, with a sample size of 54 people. There were 67 respondents that met the inclusion criteria. Data collection was conducted at 11 Integrated Health Posts in Johar Baru Village from July to October 2018. The variables studied were the level of mass media usage and the level of knowledge about malocclusion among health volunteers. Ethical approval was granted (010900818) and respondents were asked to give written consent before data was collected and retrieved. Data collection was done by questionnaire consisting of informed consent, personal data, level of mass media usage questionnaire and the level of knowledge about malocclusion questionnaire. The questionnaire was used because there was no other measurement tool that could be used to measure the level of knowledge and the level of mass media use. Therefore, the questionnaire was made for this study to be used as a measurement tool. The questionnaires consisted of statements and respondents answered them by choosing right, wrong, or don't know. The list of statements about level of knowledge was as follows:

- Factual knowledge
  - Children's teeth are different from adult's teeth.
  - When children are growing, their teeth can grow to be crooked or crowded.
  - Crowded teeth are not normal.
  - Thumb-sucking is a bad habit.
  - Lip-sucking is a bad habit.
  - Nail-biting is a bad habit.
- Conceptual knowledge
  - Thumb-sucking will affect teeth growth.
  - Teeth position can affect children's appearance.
  - Teeth position cannot affect children's oral health.
- Procedural knowledge
  - A dental technician can provide one of the services to treat crowded teeth.
  - This child has dental problems and should be examined by a dentist. (This sentence was

stated with an addition of a picture of a class III malocclusion patient.)

- Metacognitive knowledge
  - If I have information about messy teeth, I will recognize the growth of messy teeth early and I can take my child to the dentist.
  - If my child's teeth are messy, I will know if I have the knowledge about messy teeth.

The mass media questionnaires used yes or no as options, with scores of 1 for yes and 0 for no. The malocclusion knowledge questionnaires used yes, no, and don't know as options, with scores of 2 for correct answer, 1 for wrong answer, and 0 for don't know.

The results of each questionnaire were calculated and divided into low level with questionnaire score less than 55%, moderate level with score 55%–75%, and high level score more than 75%. A validity and reliability test was carried out on 11 respondents. Univariate analysis was used to determine the frequency distribution of the level of knowledge about malocclusion and the level of use of mass media in health volunteers. Bivariate analysis was conducted using a chi-square test to determine the relationship between mass media and knowledge of health volunteers about malocclusion.

## Results

### Sociodemographic Overview of Respondents

There were 67 subjects in this study. All of the subjects were females aged 30–60 years old. Based on the inclusion criteria, the income of all subjects was above the Regional Minimum Wage, which is IDR 3,648,000.

The most populated age group was in the age range 51–60 years with a percentage of 53.7%. The majority of respondents had an education level of high school, with a percentage of 50.7%. Meanwhile, the respondent's occupation was given as mostly being housewives, with a percentage of 89.4%, followed by retirees, with a percentage of 10.6%

### Characteristics of Mass Media Usage

In Table 1, it can be seen that the mass media most often used by health volunteers is television, with a percentage of 88.1%, followed by internet, with a percentage of 35.8%, and newspapers, with a percentage of 20.9%. News

was the type of information most often seen or heard, with a percentage of 80.6%, followed by entertainment, with a percentage of 47.8%, and health, with a percentage of 44.8%. The highest frequency group of mass media usage was 5–7 times a week, with a percentage of 58.2%, followed by 3–4 times a week and 1–2 times a week, with a percentage of 20.9%. The majority of mass media use of respondents was at the moderate usage level, with a percentage of 38.8%, followed by high usage level, with a percentage of 32.8% and low usage level, with a percentage of 28.4%.

Mass Media Usage	n = 67	Percentage (%)
<b>Types of Mass media</b>		
Internet	24	20.2
Television	59	49.6
Radio	9	7.6
Newspaper	14	11.8
Brochure	12	10.1
Others	1	0.8
<b>Types of information often seen or heard</b>		
Entertainment	32	24.8
News	54	41.9
Gossip	7	5.4
Health	30	23.3
Others	6	4.7
<b>Frequency of mass media usage</b>		
5-7 times a week	39	58.2
3-4 times a week	14	20.9
1-2 times a week	14	20.9
<b>Level of usage</b>		
Low	19	28.4
Moderate	26	38.8
High	22	32.8

**Table 1.** Characteristics of mass media usage by health volunteers in Johar Baru Village, Central Jakarta.

### Level of Knowledge about Malocclusion

In Table 2, it can be seen that the highest level of knowledge about malocclusion in respondents is high, with a percentage of 74.6%, followed by moderate, with a percentage of 16.4% and low, with a percentage of 9%.

Level of Knowledge	n	Percentage (%)
Low	6	9
Moderate	11	16.4
High	50	74.6

**Table 2.** Level of knowledge about malocclusion among health volunteers of Johar Baru Village, Central Jakarta.

### Relationship between Levels of Mass Media Use and Level of Malocclusion Knowledge

The analysis was conducted using a chi-square test. When the test analysis was done, the data group had to be reduced from three groups into two groups, namely moderate and high, because there were several cells with an expected count of less than 5. The moderate group comprised the combined results from the low group and the moderate group.

In Table 3, the analysis of the relationship between the level of mass media usage and the level of knowledge of malocclusion among health volunteers stated that 74.6% of respondents had a high level of knowledge and 25.4% of respondents had a moderate level of knowledge. In the moderate level of mass media usage, 68.9% of respondents had a high level of knowledge and 31.1% of respondents had a moderate level of knowledge. Meanwhile, in the group with a high level of mass media usage, 86.4% of respondents had a high level of knowledge and 13.6% had a moderate level of knowledge. The chi-square test result significance value was 0.123, which was more than 0.05.

Mass media usage	Knowledge about malocclusion				Total n	p
	Moderate		High			
	n	%	n	%		
Moderate	14	31.1	31	68.9	45	0.123
High	3	13.6	19	86.4	22	
Total	17	25.4	50	74.6	67	

**Table 3.** Differences in the level of mass media usage and level of knowledge about malocclusion in health volunteers of Johar Baru Village, Central Jakarta.

### Discussion

This study was conducted with the aim of determining the relationship between the use of mass media and the level of knowledge about malocclusion among health volunteers in Jakarta. This study was the first study carried out in Indonesia. From a total of 78 potential respondents, 67 individuals met the inclusion criteria. Potential respondents were given inclusion criteria to minimize factors that affect knowledge, in addition to information sources. The respondents were informed of the inclusion criteria in advance.

The level of malocclusion knowledge questionnaire was developed based on four dimensions of knowledge: factual knowledge, conceptual knowledge, procedural knowledge, and metacognitive knowledge.<sup>14</sup> The questions contained general knowledge about malocclusion. While the level of mass media usage questionnaires was developed based on types of media, the questionnaire contained questions about the use of mass media related to malocclusion and orthodontists. Questions were divided into usage of electronic media, print media, and digital media.<sup>10,11</sup>

The respondents' most-used mass media were television and the internet. This was in line with the results of the 2017 Nielsen Indonesia Survey which states that the use of television media is the highest, followed by the use of the internet.<sup>15</sup> The high use of television can also occur because the majority of the respondents are housewives. The large amount of housework makes respondents prefer to watch television as they can combine it with doing housework.

The most common type of information seen by the respondents was news, followed by entertainment and health. These results may occur due to differences in interest in each person, as well as a small sample population. This was supported by Hsu's research which stated that the use of social media may be influenced by personal characteristics in each person.<sup>16</sup>

The frequency of mass media usage almost every day may occur due to the high socioeconomic and educational level of respondents. In a society with high socioeconomic and educational levels, it was easier to access mass media because better facilities were available.<sup>16</sup> In addition, respondents whose occupations were housewives and retirees also had more time to access mass media.

Although the frequency of use of mass media was high, the level of use to find information about malocclusion was moderate. This was also supported by the characteristics of respondents in this study, which showed that health information was in third place in the type of information that was often seen or heard in the use of mass media. The results of this study were consistent with Henzell's research in New Zealand, which stated that the use of social media related to malocclusion or orthodontic

treatment was still marginal, although social media is one of the frequently used sources of information.<sup>17</sup> However, these results differ from Danaei's research in Iran, stating that television was one of the most-used sources of information on malocclusion.<sup>6</sup> The results of this study may be different because there are not many shows about health on Indonesian television.

The high level of knowledge of malocclusion in most respondents might happen because the socioeconomic level of all respondents was high, and the educational level of all respondents was moderate to high. These results were consistent with Danaei's research in Iran and Moshkelgosha in Iran, which stated that parents with high socioeconomic and educational levels have significantly more knowledge about malocclusion.<sup>2,6</sup>

The relationship between the use of mass media and knowledge of malocclusion did not reach statistical significance. Therefore, the hypothesis that there is a relationship between the use of mass media in health volunteers and the knowledge of malocclusion was rejected. These results were not in line with Redmond's research which stated that the higher the use of health information sources, such as print media, television and the internet, the better the health behavior and knowledge of one's health.<sup>12</sup> In the results of this study, even in the moderate mass media users group, 68.9% of respondents had a high level of knowledge. This might be influenced by the respondents' knowledge sources. One source of information other than mass media was interpersonal communication, such as with friends, family, health organizations or doctors.<sup>10</sup> In this study, the exclusion criteria were health volunteers who themselves, or whose families or relatives had received orthodontic treatments, so the information they got was not from dentists or orthodontists who treated them, their families, or relatives. Despite that, the health volunteers can still get information about malocclusion from health workers, such as dentists who they have visited. This might be the reason why mass media influence was not clearly seen in this study. This was supported by Bergeron's research in the United States which states that middle-aged women use health workers more as a source of health information. However, the internet remained a reliable source of information about health in addition to health workers, even though the credibility of the source must be well

ascertained.<sup>18</sup> Likewise with Henzell's research in New Zealand and Stephens's research in England which stated that the main source of information about malocclusion and orthodontic treatment in orthodontic patients was orthodontists or dentists, although the mass media was also one of the sources of information that can be used.<sup>17,19</sup> Xie's research in China also stated that patients with cancer and their families got more health information from doctors or other health workers than from friends or family, or the mass media. The study also explained that participants who use mass media other than the internet could get more health information than from the internet itself.<sup>20</sup>

Interpersonal communication might be more influential in delivering health information. Interpersonal communication allows discussion to happen so that the patient could understand better. This study suggests that mass media might be combined with interpersonal communication to deliver health information more effectively, because mass media can spread information to the larger community.

## Conclusions

Based on the results of the study, it can be concluded that there is no significant relationship between the use of mass media and the level of knowledge about malocclusion of Integrated Health Posts' health volunteers in Central Jakarta. Further study might be needed to determine the effectiveness of interpersonal communication and mass media in disseminating health information.

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## Declaration of Interest

The authors report no conflict of interest.

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