

The Use of Distance Fences In Reducing Dental Pain in The Community of the Bireuen District

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ARTICLE INFO

Keywords:

The Use of Distance Fences,
Dental Pain,
Oral Health.

ABSTRACT

Dental and oral health problems, especially dental cavities (caries), are still many complaints by both children and adults. Traditional medicine is still developing in the community by utilizing herbal plants. One of the plants that are widely used to reduce tooth pain is jatropha gum. Jatropha gum is still believed to reduce pain in teeth. This study aimed to determine the relationship between the use of jatropha sap in reducing tooth pain in the community in Cot Gapu Village, Juang City District, Bireuen Regency. This research is analytic with the cross-sectional approach. The population in this study were all people in Cot Gapu Village, Kota Juang District, Bireuen Regency, who suffered from toothache, totaling 82 people with a sample of 46 people. The Random Sampling technique did sampling. The study's results found a relationship between the use of Jatropha gum in reducing tooth pain in the community. Jatropha gum is used to cure dental caries by dripping one or two drops of sap into the tooth cavity. Jatropha sap contains flavonoids that can function as antifungal, antiseptic, and anti-inflammatory, also contains saponins that can stimulate collagen growth in the healing process and also have the effect of relieving pain and stimulating the formation of new cells.

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1. Introduction

Oral health is a crucial indicator of overall health, well-being, and quality of life. According to the World Health Organization (WHO), oral health is a state of being free from oral pain, diseases, and disorders of the mouth that limit a person's ability to bite, chew, smile, speak, and psychosocial well-being. The Global Burden of Disease study reports that oral conditions affect 3.9 billion people [1]. Besides being a significant cause of oral disease, poor oral hygiene significantly affects appearance [2]. Poor oral hygiene is not only associated with systemic diseases but also with several oral diseases. In children, poor oral hygiene is a significant cause of dental caries [3]. Dental caries (tooth decay) and periodontal disease are the most common oral diseases globally in the world community (4). Most oral diseases remain untreated in developing countries because treatment costs exceed the available financial and human resources (5). About half or more of the world's population suffers from periodontal disease, and about 11.2% suffer from severe periodontitis [6]. Similarly, dental caries are most common in permanent teeth and affect approximately 2.4 billion people, whereas early childhood caries affects 621 million children [7]. Several factors cause caries, including microorganisms, substrate, host, and time. Factors that cause toothache include tooth decay or fracture, tooth abscess, or infected gums [8]. One of the efforts in treating tooth decay is to use herbal medicinal plants. Medicinal plants have been used as traditional treatments for various human ailments for thousands of years and in many parts of the world [9]. According to the World Health Organization, between 65% and 80% of the population of developing countries use medicinal plants as medicine, and the use of traditional medicines continues to proliferate throughout the world [10].

Indonesia has around 40,000 different plant species, of which 6,000 are used for traditional

healing processes [11]. One of the drugs that are often used by the community in dental treatment is castor. *Jatropha* (*Jatropha curcas* L.) is a type of shrub or tree resistant to drought to survive in areas with low rainfall. *Jatropha* plant as alternative medicine is often used by the people of Indonesia because there are many and easy to find. Various studies have been carried out to find out more about the benefits that can be obtained from the *Jatropha* plant. [12]. The community uses the sap of the *Jatropha* plant to treat acute pulpitis on the teeth by dripping the sap of the *Jatropha* plant. The sap from the *Jatropha* plant is an easy solution because this plant is often found in the house's yard. All parts of the *Jatropha* plant contain sap; an alkaloid called atropine, an anticancer compound, and up to 10% tannin as an antibacterial[13].

Based on data obtained from the Keuchik, Cot Gapu Village, Kota Juang District, and Bireuen Regency, there were 245 people. At the same time, data was obtained from health workers based on patient visits from January-December 2019 who experienced dental caries as many as 60 people (32%) and gingivitis among 20 people (8.1%). Based on the results of interviews conducted with 15 people in the community, it was found that there are still many people who use *Jatropha* gum, where the sap is inserted into the dental cavity to reduce pain in aching teeth. Based on the description above, researchers are interested in researching the relationship between the use of *jatropha* sap in reducing tooth pain in the community in Cot Gapu Village, Juang City District, Bireuen Regency.

2. Methods

This research is analytic with a cross-sectional approach to analyze the relationship between using *Jatropha* gum to reduce tooth pain in the community in Cot Gapu Village, Juang City District, Bireuen Regency. This research was conducted in Cot Gapu Village, Kota Juang District, Bireuen Regency, on 06 to 24 July 2021. The population in this study were all people in Cot Gapu Village, Juang City District, Bireuen Regency, who suffered from toothache, totaling 82 people with samples, namely 46 people. The Random Sampling technique did sampling. Data processing based on the number of variables is divided into univariate and bivariate analyses. The univariate analysis aims to describe each research variable in frequency distribution and percentage of each variable of public knowledge about fluoride with dental caries prevention. Bivariate analysis to determine the relationship between variables, namely public knowledge about fluoride and prevention of dental caries; in this case, statistical testing was carried out—data analysis using the chi-square test.

3. Results and discussion

Community frequencies by gender in Cot Gapu Village, Kota Juang District, and Bireuen Regency are shown in the following table:

TABLE 1
FREQUENCY DISTRIBUTION OF RESPONDENTS BY GENDER IN COT GAPU VILLAGE, JUANG CITY DISTRICT, BIREUEN

No	Gender	frequency	Percentage
1	Man	14	30%
2	Woman	32	70%
	Total	46	100%

Table 1 above shows that the highest category based on the female gender is 32 people with a percentage (70%).

3.1 Use of *Jatropha* Sap

Frequency distribution of the community based on the use of *Jatropha* resin in Cot Gapu Village, Kota Juang District, Bireuen Regency, as shown in the following table:

TABLE 2
FREQUENCY DISTRIBUTION OF COMMUNITY USE OF *JATROPHA* GUM IN COT GAPU VILLAGE, JUANG CITY DISTRICT BIREUEN DISTRICT

No	Use of castor rubber	frequency	Percentage
1	There is	38	83%
2	Not	8	17%
	Total	46	100%

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Table 2 above shows that the category with the most use of *Jatropha sap* is 38 people with a percentage (of 83%).

3.2 Reduce pain

The frequency distribution of respondents based on the use of *Jatropha resin* in Cot Gapu Desa Village Kota Juang District, Bireuen Regency, as shown in the following table:

TABLE 3
DISTRIBUTION OF COMMUNITY FREQUENCY IN REDUCING TOOTH PAIN IN COT GAPU VILLAGE, JUANG CITY DISTRICT BIREUEN DISTRICT

No	Reduce tooth pain	frequency	percentage
1	There is	42	91 %
2	Not	4	9%
	Total	46	100%

Table 3 above shows that the highest category in reducing tooth pain is 42 people, with a percentage (of 91%).

3.3 Bivariate Analysis Use of *Jatropha Sap*

The frequency distribution of using castor gum in reducing tooth pain in the community in Cot Gapu Village, Kota Juang District, Bireuen Regency is shown in the following table:

TABLE 4
FREQUENCY DISTRIBUTION OF USE OF DISTANCE GUM IN REDUCING TOOTH PAIN IN COMMUNITIES IN COT GAPU VILLAGE, JUANG CITY DISTRICT BIREUEN DISTRICT

No	Use of castor rubber	Reduce pain				Total	%	P value
		There is	%	Not	%			
1	There is	38	95	2	5	40	100	0.003
2	There is not any	0	0	6	100	6	100	
	Total	38	82.6	8	17.4	46	100	

Table 4 above shows that the community in Cot Gapu Village, Kota Juang District, Bireuen Regency, uses castor gum to reduce tooth pain as many as 38 respondents (82.6%). Based on the results of statistical tests using the chi-square test, it has a value of $p = 0.003$, meaning that there is a relationship between the use of *jatropha gum* to reduce tooth pain in the community in Cot Gapu Village, Juang City District, Bireuen Regency. *Jatropha sap* also contains flavonoids that can function as antifungal, antiseptic, and anti-inflammatory; it also contains saponins that can stimulate collagen growth in the healing process and relieve pain and stimulating the formation of new cells. *Jatropha sap* also contains tannins (18%) which function as mouthwash and bleeding gums, as well as wound medicine [14].

Jatropha gum is used to cure dental caries by dripping one or two drops of sap into the tooth cavity. Preventing dental caries can be done with a non-invasive treatment without taking the teeth' hard tissue. One of the efforts to prevent caries is to condition the atmosphere of a healthy oral cavity by controlling the growth of bacteria. The bacteria that causes caries is *Streptococcus Mutans* which is a facultative anaerobic bacterium and is a microflora of the oral cavity[15]. The researcher assumes that the *jatropha sap* plant, besides being easy to find around the community's yard, also contains many benefits and is one of the traditional medicinal plants that can reduce tooth pain. The bivariate analysis results can be explained in table 4 with the category of using *Jatropha gum* in reducing tooth pain, namely 38 people with a percentage (82.6%), while the category of no use of *Jatropha gum* is eight people with a percentage (17.4%).

4. Conclusion

There is a relationship between using *jatropha gum* in reducing tooth pain in the community in Cot Gapu Village, Juang City District, Bireuen Regency. It is hoped that the community will take better care of their dental health, so they are free from dental and oral diseases.

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