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Anxiety level differentiation in 6-12 years old children before and after loss dental care using topical anesthesia at Dental Hospital Hasanuddin University

Adam M. Hamudeng,* Fynna R. Ryanda

Abstract

Objective: Anxiety is a psychological and physiological condition which signed by emotion, cognitive and someone's behavioral component. Anxiety behavior has long been recognized as the most difficult aspect in the management of patients and may frustrate a dental treatment that will be carried out, especially in children ages 6-12 years. Fear of treatment tooth extraction and local anesthesia is the main reason for kids disliking dental care.

Material and Methods: This type of research is observational analytic with nonprobability sampling technique.Total sample of this research are 30 people who fulfill the criteria. The sample consist of 16 boys and 14 girls with age range of 6 to 12 years old. The level of anxiety before and after tooth extraction assessed using Facial Image Scale (FIS). Facial Image Scale (FIS) has five criteria which describe the level of anxiety in children, very happy by point 1, happy by point 2, normal by point 3, unhappy by point 4 and very unhappy by point 5.

Results: The results of the analysis of differences in anxiety with FIS measurement tools show there are differences in the level of anxiety in children before and after tooth loss based on the location of the jaw, the type of anesthesia applied topically, gender and overall.

Conclusion: There is a difference in children before and after tooth loss and the difference is significant

Keywords: Anxiety, Dental care, Topical anesthesia

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Departement of Pediatric, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

*Correspondence to: Adam Malik Hamudeng, Departement of Pediatric, Faculty of Dentistry, Hasanuddin University
adammalikh94@yahoo.co.id

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Introduction

Anxiety is a psychological and physiological condition which signed by emotion, cognitive and someone's behavioral component. Anxiety may lead to fear, worry and nervous if followed with or without stress.[1] Dental axienty is a fear occurred in patient when coming to the dentist or as an anticipation manner to dental care experience.[1] Dental anxiety is commonly experienced by children and the ymptoms are varied on ages. Generally, toddlers show their anxiety by crying, meanwhile kids show ther anxiety in various ways. The communication limit in kids and expressing their anxiety and fear can be shown through their attitude. Furthermore, dental health care for kids can give significant effect not only for the kids but also their family, afterwards dental anxiety must be attentioned because can be the main obstacle for kids in getting dental care.[2,3]

Severity of anxiety level in kids influenced by personal and family factor. Otherwise, dental axiety correlated with factors related to personal, social-economy and genetic factors. Severe dental anxiety may disturb dental care process and continue until they grow mature. The age when kids are introduced to the dentist is an important element to build their attitude toward dental care.[2]

Anxiety has been recognized as the most complicated aspect in managing patient and can disturb a dental care applied, specially at kids.[1] the fear to the loss dental care and local anasthesy is the main reason of why kids dislike dental care.[4] It also become reasons of kids avoid routine dental care because they have negative perspective about local anasthesy given during treatment.[5] Local anathesy generally applied for kids in controlling pain during dental care procedure. Local anasthesy application itself generate pain and anxiety ahich lead to undesirebale attitude afterward.[6] It occurs because pain perception appeared felt by the existence neddle pemetration.[7] Treatment given to reduce unconfortability of kids of local anesthetic injection, can be applied the topical anesthetic.

Topical anathesy is a part of local anathesy and has phycological and pharmacological impact.

Table 1 ***Sounds-Eye-Motor Scale*** **(SEMS) tool**

Observation	1-Comfort	2-Enough uncomfortable	3-Enough painful	4 painful
Sound	No sound, of pain	No specific sound of pain	Complaint verbally by raising voice	Complaint verbally painful
Eyes	No pain	Eyes open, look concentrate	blink some times	Cry
			drop tears	tears drop to face
		no tears		
Motoric	calm	Hand holds chairs, show anxiety	Contact physically; hand and body movement	Aggressive movement to avoid treatment

Table 2 **Distribution of frequency of anxiety level of the samples and teeth molar which was treated**

Sample characteristic	Before treatment	After treatment
Sex and jaw position		
Boys		
Upper jaw		
Very pleasant	0 (0%)	0 (0%)
pleasant	3 (10%)	1 (3.3%)
normal	4 (13.4%)	4 (13.3%)
Unpleasant	0 (0%)	2 (6.7%)
Very unpleasant	0 (0%)	0 (0%)
Lower jaw		
Very pleasant	1 (3.3%)	2 (6.7%)
pleasant	1 (3.3%)	0 (0%)
normal	7 (23.4%)	4 (13.3%)
Unpleasant	0 (0%)	3 (10%)
Very unpleasant	0 (0%)	0 (0%)
Girls		
Upper jaw		
Very pleasant	0 (0%)	2 (6.7%)
pleasant	4 (13.3%)	1 (3.3%)
normal	4 (13.3%)	4 (13.3%)
Unpleasant	1 (3.3%)	2 (6.7%)
Very unpleasant	0 (0%)	0 (0%)
Lower jaw		
Very pleasant	0 (0%)	0 (0%)
pleasant	0 (0%)	0 (0%)
normal	4 (13.3%)	2 (6.7%)
Unpleasant	1 (3.4%)	2 (6.7%)
Very unpleasant	0 (0%)	1 (3.3%)

Topical anasthesy control pain perception and change the reaction to the pain by blocking stimulus transmission from sensoric nerve.[8] Topical anasthesy support in intraoral operatif procedure, removing the pain of superficial mucose and pasca extraction pain.[6] Topical anathesy have some advantages compare to conventional anasthetical technique, include improving patient's cooperation, minimalizing bloody complication, decreasing smooth tissue laseration and reducing wound appeared after neddle insersion.[7,8]

Material and Methods

Study type conducted is observational analytic with nonprobability sampling technique, because this study using children patient population who visited the study location. It is conducted to 30 patients who fulfill the children and visited Dental Hospital Hasanuddin University. Samples consist of 16 boys and 14 girls aged 6-12 years old. Anxiety level before and after loss dental care conducted in the samples scaled with facial image scale (FIS) measurement. FIS has 5 criterias which draw expression of axiety level in children, such as very pleasant given 1 point, pleasant given 2 points, normal given 3 points, unpleasant given 4 points, and very unpleasant given 5 points.[9] Figure 1.

Besides measuring before and after treatment, this study also conducted anxiety level during treatment. That mesuement carried out by Sounds-Eye-Motor Scale (SEMS) tool. Table 1.

Results

(Anxiety level in boy before treated in upper jaw with unpleasant criteria is not found (0%) pleasant is 3 boys (10%), normal is 4 boys (13.4%) and didn't found unpleasant and very unpleasant (0%). Anxiety level in boy after treated in upper jaw with unpleasant criteria is not found (0%) pleasant is 1 boy (3.3%), normal is 4 boys (13.3%) and unpleasant is 2 boys (6.7%) and none very unpleasant (0%). Anxiety level in boy before treated in lower jaw with unpleasant criteria is 1 boy (3.3%), pleasant 1 boy (3.3%), normal 7 boys (23.4%) and none unpleasant and very unpleasant (0%). Anxiety level in boy after treated in lower jaw with unpleasant criteria is 2 boys (6.7%), pleasant boy is none (0%), normal is 4 boys (13.3%) and unpleasant is 3 boys (10%) and very unpleasant is none (0%). Table 2 Anxiety level in girls before treated in upper jaw with very pleasant criteria is not found (0%), pleasant is 4 girls

Table 3 Distribution of anxiety level frequency based on subject characteristic, jaw location, and topical anesthetic type (during treatment)

Sample characteristic	During treatment	
	Spray	Gel
Sex and jaw location		
Boys		
Upper jaw		
Comfortable	2 (7.7%)	0 (0%)
Quite uncomfortable	3 (11.5%)	0 (0%)
Enough painful	2 (7.7%)	0 (0%)
Painful	0 (0%)	0 (0%)
Lower jaw		
Comfortable	3 (11.5%)	0 (0%)
Quite uncomfortable	3 (11.5%)	0 (0%)
Enough painful	1 (3.9%)	1 (25%)
Painful	0 (0%)	1 (25%)
Girls		
Upper jaw		
Comfortable	4 (15.4%)	0 (0%)
Quite uncomfortable	3 (11.5%)	0 (0%)
Enough painful	1 (3.9%)	0 (0%)
Painful	0 (0%)	1 (25%)
Lower jaw		
Comfortable	2 (7.7%)	0 (0%)
Quite uncomfortable	0 (0%)	0 (0%)
Enough painful	2 (7.7%)	0 (0%)
Painful	0 (0%)	1 (25%)

Figure 1 Facial Image Scale (FIM) measurement Tool

(13.3%), normal is 4 girls (13.3%) and unpleasant is 1 girl (3.3%) and very unpleasant is none (0%). Anxiety level in girls after treated in upper jaw with very pleasant criteria is 2 girls (6.7%), pleasant is 1 girls (3.3%), normal is 4 girls (13.3%) and unpleasant is 2 girls (6.7%) and very unpleasant is none (0%). Anxiety level in girls before treated in lower jaw with very pleasant and pleasant criteria is not found (0%), normal is 4 girls (13.3%) and unpleasant is 1 girl (3.4%) and very unpleasant is none (0%). Anxiety level in girls after treated in lower jaw with very pleasant and pleasant criteria are not found (0%), normal is 2 girls (6.7%) and unpleasant is 2 girls (6.7%) and very unpleasant is 1 girl (3.4%).

Anxiety level in boy during treatment in upper jaw using spray topical anesthetic in comfort found 2 boys (7.7%), quite uncomfortable (11.5%), enough painful is 2 boys (7.7%) and no boys in pain. Anxiety level in boys during treatment in upper jaw using gel topical anesthetic in comfortable, quite uncomfortable enough painful and painful are not found (0%). Anxiety level in boy during treatment in lower jaw using spray topical anesthetic in comfortable found 3 boys (11.5%), quite uncomfortable 3 boys (11.5%), enough painful 1 boy (3.9%) and no boys in pain. Anxiety level in boy during treatment in lower jaw using gel topical anesthetic in comfortable and quite uncomfortable are not found (0%), enough painful is 1 boy (25%) and painful is 1 boy (25%). Anxiety level in girls during treatment in upper jaw using spray topical anesthetic in comfortable is 4 girls (15.4%), quite uncomfortable is 3 girls (11.5%), enough painful is 1 girl (3.9%) and painful is none (0%). Anxiety level in girls during treatment in upper jaw using gel topical anesthetic feeling comfortable, quite uncomfortable and enough painful are none (0%) and painful is 1 girl (25%). Anxiety level in girls during treatment in lower jaw using spray topical anesthetic in comfortable is 2 girls (17.7%), quite uncomfortable is none (0%), enough painful is 2 girls (7.7%). Anxiety level in girls during treatment in lower jaw using gel topical anesthetic in comfortable, quite uncomfortable and enough painful are none (0%) and painful is 1 girl (25%) table 3.

Discussion

This study conducted to understand the difference of kids' anxiety levels to topical anasthesi application before and after loss dental care. This study conducted to samples with the following criteria: children aged 6-12 years old. It is conducted by considering that 6-12 year old kid experience permanent tooth eruption and desidui tooth exchange with permanent tooth, furthermore will show quantity and quality in loss dental kid affected anxiety level.

This study shows that there is diffentiation of anxiety level in kids before and after loss dental based on jaw position, topical anastesy applied sex

and overall. It is supported by the study conducted by shehab et al.[8] stated that there is insignificant differentiation to the jaw position of the treated teeth, both in upper jaw and lower jaw. Anasthetic application in keratin and gingival tissue equally cause no pain differentiation, thus no difference in anxiety level at kids based on jaw position before and after loss dental care.[8]

Study conducted at Dental Hospital Hasanuddin University, loss dental care in children conducted with topical gel anas-tesy (Topicale®) and ethyl chloride as topical spray. Ethyl chloride is a topical anasthesy in spray. Ethyl chloride is an organic compound, easy to evaporate and when spraying to skin it reduce tissue surface temperature to -20°C 10 second after spray, ethil chloride spray is easy to apply, fast and non-invasive. But, its side effect is allergic reaction topical anasthesy in gel and spray have its shortage and superiority. Topical anasthesy in gel is better in localizing and control its anesthetic substance in minimum dosage. Besides, gel topical anastesy dissolve in mouth and hard to keep contact with mouth mucose in longer time. Spray topical anasthesy has higher concentration of local anesthetic substance and easy to absurb by mucose membrane then provide effective anesthetic effect.[10]

Study result based on sex, shows anxiety level differentiation between boys and girls, but insignificantly girls perform more anxiety than that the boys. It is also proven in a study conducted by Popescu who study the anxiety level in different sex. Besides, a study conducted by Rehatta et al.[12] prove that sex affect anxiety levels significantly thus girls perform more anxiety level than the boys. In taking care kids dental, it can be observed in their psicological development thus it can be treated properly and to understand their reactions during dental treatment.[12]

Generally, kids will feel anxiety when visiting dentist. One of the reason is because the sound of bur which is scary then grow anxiety otherwise because the previous experience that the children got. Anxiety appeared by the kids will start pain and the pain inhibitus will not be excreted. Anxiety or fear experienced by kids refuse to visit dentist as well as to conduct dental care, thus makes kids have their dental problem. Generally, many parents don't know that they have an important role to shape their kids behavior.[13] girl will feel anxiety for her inability compare to boys. Boys are more active and explorative meanwhile girls are more sensitive than boys. Besides, girls have more pain than boys. It is because girls have lower pain tolerance intencity than boys have and in general girls have more anxiety level than that in boys. Girls are more expressive in showing their feelings, meanwhile boys are hiding their feelings and have stable emotion. Girls in general is more often feel anxiety that in boys. Girl shows fearness in greater number and stronger than that in boys

By observing anxiety level before and after treatment based on anxiety levels of sample it can be said that before conduct treatment, girls feel more anxiety than boys. After treatments, girls are still feel more anxiety than that in boys. Otherwise, girls show more anxiety before and after loss dental care than those in boys.

Conclusion

Overall, there is a differentiation in kids before and after loss dental care. Statistical test perform that there is a differentiation of anxiety level in kids before and after treatment and it is significant.

Conflict of Interest

The authors report no conflict of interest.

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