

Assessing the Relationship between Patient's Anxiety Level and Pain Experienced during Dental Extraction under Local Anaesthesia

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Abstract: Pain is usually associated to dental care and several factors may influence its perception because it is a complex process. Dental anxiety is one of the commonly feared situation which affects patient's response towards upcoming dental visits and it usually generates stress that can create significant problems especially for those who are medically compromised. The reason of this study is to find out any relationship between anxiety and pain, if there is the treatment modalities can be changed for example , anxious patient can be treated under sedatives.

Keywords: dental, extraction, pain, anxiety, local anaesthesia

1. Introduction

An ideal tooth extraction defined as painless removal of the whole tooth or root with minimal trauma to the investing tissues so that the wound heals uneventfully and no post operative prosthetic problem created (Geoffray L Howe). Extractions of tooth is done in conditions such as deep caries, apical osteitis, root fractures, extremely deep periodontal pockets and acute local infections associated with the tooth¹. Extraction is a method by which a tooth is removed from its socket after creating a flap and removing the part of bone that surrounds the teeth. Pain during dental treatment is more associated to invasive procedures, tooth extractions and surgeries, but it may also be associated to noninvasive procedures. Adminstrating Local anesthesia is referred to as a painful procedure generating anxiety. Anxiety is determinant for pain during dental care and pain is related to local anesthetic administration procedures². Extraction of teeth may result in few complicated conditions such as tooth fracture, abruption of alveolar wall, abruption of maxillary tuber, injury to the neighbouring tooth, injury to the tooth in contra lateral jaw, luxation of tooth bud, jaw fracture, nerve injury, intrusion, swallowing of tooth and tooth aspiration³.

2. Material and method

Study design & Settings –This study design is based on data collected from patients who underwent extraction in Saveetha Dental College Chennai.

Study Participants – 60 questionnaire are been filled up based on patients who reported at Saveetha Dental College who underwent extractions due to pulpitis, mobility, root stump, periodontal disease, fractured teeth, etc.

Data Collection: Study was conducted on patients who visited Saveetha Dental College Chennai for dental extraction . The questionnaire has been issued to the patient which has data like , Age, SEX, Anxiety level, Pain scale to assess the relationship between pain and anxiety during dental extraction. Anxiety was measured using the Hamilton

Anxiety Rating Scale where 0 was rated as no Anxiety,1 was rated as mild anxiety,2 was rated as Moderate Anxiety ,3- severe Anxiety and 4 is very Severe Anxiety and pain was measured using the Pain Visual Analouge Scale.

3. Results

Regression Analysis: Anxiety Vs. Pain

The regression analysis was carried out to obtain the relationship between pain and anxiety level. It is evident from the above table that the $R^2 = 0.605$ which means that the independent variable (Anxiety) explains 60.50 per cent of the variability of the dependent variable (Pain) with significant 't' value. This supports the conclusion that an increase in pain level has been associated with an increase in anxiety level. The collected data was analysed with Statistical Package for Social Sciences for Windows, Version 16.0,(SPSS Inc., Chicago, IL,USA).To describe about the data descriptive statistics frequency analysis, percentage analysis were used for categorical variables and the mean & S.D were used for continuous variables. To find the significance in categorical data Chi-Square test was used. In the above statistical tool the probability value .05 is considered as significant level.

4. Frequency

Sex					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	29	48.3	48.3	48.3
	Female	31	51.7	51.7	100
	Total	60	100	100	

Anxiety					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No anxiety	5	8.3	8.3	8.3
	Mild	19	31.7	31.7	40
	Moderate	23	38.3	38.3	78.3
	Severe	13	21.7	21.7	100
	Total	60	100	100	

Pain					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	5	8.3	8.3	8.3
	1	4	6.7	6.7	15
	2	3	5	5	20
	4	1	1.7	1.7	21.7
	5	18	30	30	51.7
	6	3	5	5	56.7
	7	7	11.7	11.7	68.3
	8	19	31.7	31.7	100
	Total	60	100	100	

Descriptive

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	60	21	74	42.6	13.478
Valid N (listwise)	60				

Sex = Male

Descriptive Statistics ^a					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	29	21	74	45.28	14.217
Valid N (listwise)	29				

a. Sex = Male

Sex = Female

Descriptive Statistics ^a					
	N	Minimum	Maximum	Mean	Std. Deviation
Age	31	21	60	40.1	12.459
Valid N (listwise)	31				

a. Sex = Female

Crosstabs

Anxiety * Pain Crosstabulation										
		Count								Total
		Pain								
		0	1	2	4	5	6	7	8	
Anxiety	No anxiety	2	2	0	0	1	0	0	0	5
	Mild	3	1	2	1	7	1	0	4	19
	Moderate	0	1	0	0	10	2	5	5	23
	Severe	0	0	1	0	0	0	2	10	13
Total		5	4	3	1	18	3	7	19	60

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	48.257 ^a	21	0.001
Likelihood Ratio	51.944	21	0
Linear-by-Linear Association	22.356	1	0
N of Valid Cases	60		

a. 28 cells (87.5%) have expected count less than 5. The minimum expected count is .08.

Nonparametric Correlations

Correlations				
			Anxiety	Pain
Spearman's rho	Anxiety	Correlation Coefficient	1	.605**
		Sig. (2-tailed)		0
		N	60	60
	Pain	Correlation Coefficient	.605**	1
		Sig. (2-tailed)	0	
		N	60	60

**. Correlation is significant at the 0.01 level (2-tailed).

Regression

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	Anxiety ^b		Enter

a. Dependent Variable: Pain
 b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.616 ^a	0.379	0.368	2.096

a. Predictors: (Constant), Anxiety

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	155.425	1	155.425	35.39	.000 ^b
	Residual	254.758	58	4.392		
	Total	410.183	59			

a. Dependent Variable: Pain
 b. Predictors: (Constant), Anxiety

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.256	0.591		3.814	0
	Anxiety	1.804	0.303	0.616	5.949	0

a. Dependent Variable: Pain

5. Discussion

Extraction is a method by which a tooth is removed from its socket after creating a flap and removing the part of bone that surrounds the teeth². Pain during dental treatment is more associated to invasive procedures, tooth extractions and surgeries, but it may also be associated to noninvasive procedures. Local anesthesia is referred to as a painful procedure generating anxiety⁵. Anxiety is determinant for pain during dental care and pain is related to local anesthetic procedures.³ This study was done to assess the relationship between pain and anxiety during dental extraction. 60 random patients are selected who are have got their tooth extracted due to varies problems ,questionnaire has been issued to the patients which has the data like anxiety level and pain level. Then it has been calculated by statistical analysis in which $R^2 = 0.605$ which means that the independent variable (Anxiety) explains 60.50 per cent of the variability of the dependent variable (Pain) with significant 't' value. This supports the conclusion that an increase in pain level has been associated with an increase in anxiety level. According to null hypothesis, the calculated

value of (X^2) is greater than the table value, the null hypothesis is rejected. On the basis sample data we can therefore conclude that there is association between pain and anxiety level. The correlation between pain and anxiety is 0.605. It reveals that, there is a high degree of positive correlation between these two variables. So, the pain level depends upon anxiety level. If the anxiety level increases the pain level will be increased.

6. Conclusion

This study is done to assess the relationship between patient's anxiety and pain during dental extraction under local anaesthesia. Dental anxiety is the best defined variable to determine pain awareness during treatment and painful sensation is related to local anaesthetic procedures. With the statistical values it has been assessed that pain level depends on anxiety and if the anxiety level increases the pain level will be increased.

References

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