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"Research Article"

The Effect of Indirect Pulp Capping Treatment on Oral Health Quality of Life at The Dental Hospital Universitas Muhammadiyah Yogyakarta

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Abstract

Background: Dental and oral health-related quality of life is an individual's assessment of the impact of oral disorders that can affect the overall quality and well-being of their lives. One of the oral disorders that is frequently experienced by the community is pulpitis, which, if left behind, can cause pain and cause the tooth to become necrotic. Indirect pulp treatment can be done to deal with pulpitis and improve the patient quality of life. The study aims to determine the impact of indirect pulp capping treatment on quality of life based on gender, age, educational level, and number of teeth treated. Methods: The data collection technique in this study uses primary data in the form of a questionnaire and secondary data, which is data from the medical records of patients performing pulp capping treatment. The sample in this study is a patient who has completed indirect pulp capping treatment in the dental hospital UMY. The data analysis used in this study are patient gender, the education level, and the number of teeth treated have no influence on quality of life related to oral health (p<0.05) otherwise the patient age has an influence on quality of life related to oral health (p<0.05). Conclusion: Gender, education level, and number of teeth treated have no influence, while age has an influence on quality of life.

Keywords: indirect pulp capping treatment, quality of life, dental and oral health.

INTRODUCTION

Socio-demographic factors such as age, gender, household income, and education can influence oral health.^{1,2} Dental and oral problems are still a common problem in society.^{3,4} This is because people's perception and motivation to carry out dental care is still low.^{5,6}

According to the American Association of Endodontics (AAE), endodontics is a branch of dentistry that studies the etiology, diagnosis and treatment of pulp tissue, tooth roots and periapical tissue.^{7,8,9} The goal of endodontic treatment is to restore tooth health so that it is accepted by the surrounding tissue.^{10,11} This means that the tooth has no symptoms, can function and has no signs– other pathological signs.^{10,11}

Pulp capping is a procedure that aims to maintain the vitality of the pulp and help the healing process.^{12,13} Pulp capping consists of 2 types, namely direct pulp capping and indirect pulp capping.^{12,13} Direct pulp capping is treating vital pulp that is exposed due to caries or trauma.^{12,13} Indirect pulp capping is a treatment for pulp that is still vital but the pulp is still covered by a thin layer of dentin.^{14,15}

Asymptomatic irreversible pulpitis, deep caries sometimes does not cause any symptoms, even though clinically or radiographically the caries can extend to the

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pulp.¹⁶ If left untreated, the tooth may become symptomatic or the pulp will become necrotic.¹⁷ Pulpitis can be prevented and treated with pulp treatment.^{17,18} For those who already suffer from pulpitis, pulp capping treatment is expected to reduce complaints or improve the condition of the teeth.^{17,18}

Thus, researchers are interested in conducting research to see the effect of indirect pulp capping treatment on the quality of life related to oral health at the Dental Hospital, Universitas Muhammadiyah Yogyakarta (UMY).

MATERIALS AND METHODS

The type of research was analytical observational with a cross sectional design, to determine the effect of pulp capping treatment on quality of life related to oral health at dental hospita UMY. The total sample in this study were patients who had completed indirect pulp capping treatment. The data analysis used in this research is univariate or descriptive analysis, namely frequency distribution (oral health quality of life). Then, bivariate analysis was also used regarding the influence of quality of life related to the oral health on the success of indirect pulp cap restoration based on gender, education level, number of threated teeth and age using the chi square test.

RESULT

Table 1. Sample frequency distribution based on gender

| Gender | frequency | Percentage |
|--------|-----------|------------|
| Female | 12 | 52.2 |
| Male | 11 | 47.8 |
| Total | 23 | 100 |

Based on the table 1 above, the number of male and female respondents is almost

comparable. However, female respondents slightly dominate with a percentage of 52.2% for women and 47.8% for men.

Table 2. Sample frequency distribution based on age

| Age | frequency | Percentage |
|-------|-----------|------------|
| 21 | 1 | 4.3 |
| 23 | 1 | 4.3 |
| 24 | 7 | 30.4 |
| 25 | 2 | 8.7 |
| 26 | 4 | 17.4 |
| 27 | 6 | 26.1 |
| 35 | 1 | 4.3 |
| 37 | 1 | 4.3 |
| Total | 23 | 100 |

Based on age characteristics, the majority of respondents were 24 years old, 7 people (30.4%), followed by 27 years old, 6 people (26.1%), 26 years old, 4 people (17.4%), 25 years old, 2 people (8.7%), 1 person aged 21 years (4.3%), 1 person aged 23 years (4.3%), 1 person aged 35 years (4.3%) and 37 years old 1 person (4.3%).

Table 3. Sample frequency distribution based on education

| Study | frequency | Percentage |
|---------|-----------|------------|
| SMA | 2 | 8.7 |
| Sarjana | 21 | 91.3 |
| Total | 23 | 100 |

Based on the educational characteristics of the respondents, the majority were at undergraduate level with 21 people (91.3%), followed by high school level with 2 people (8.7%).

Table 4. Sample frequency distribution basedon the number of teeth treated

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| Teeth treated | Frequency | Percentage |
|---------------|-----------|------------|
| 1 | 20 | 87 |
| 2 | 2 | 8.7 |
| 3 | 1 | 4.3 |
| Total | 23 | 100 |

Based on the number of teeth treated, the number of respondents who had 1 tooth treated was 20 people (87%), 2 people had it done on 2 teeth (8.7%) and 1 person (4.3%) had done it on 3 teeth.

| Table | 5. | Frequency | distribution | of |
|---------|-------|------------|--------------|----|
| respond | lents | to OHIP-14 | | |

| OHIP-14 | Frequency | Percentage |
|----------|-----------|------------|
| Severe | 0 | 0 |
| Moderate | 2 | 8.7 |
| Good | 21 | 91.3 |
| Total | 23 | 100 |

Based on the distribution of respondents to OHIP-14 using the Linkert scale, there were no patients who severe bad results (0%), there were 2 patients who got moderate results (8.7%), and 21 patients got good results (91.3%).

Table 6. Effect of indirect pulp capping treatment on patient quality of life based on gender

| | | | Asymptotic |
|------------------|--------|----|--------------|
| | | | Significance |
| | Value | Df | (2-sided) |
| Pearson Chi- | | | |
| Square | 2.008a | 1 | 0.156 |
| Continuity | | | |
| Correction b | 0.457 | 1 | 0.499 |
| Likelihood Ratio | 2.777 | 1 | 0.096 |
| Fisher's Exact | | | |
| Test | | | |
| Linear-by-Linear | | | |
| Association | 1.921 | 1 | 0.166 |
| N of Valid Cases | 23 | | |

Based on the table above, the asymp. The sig for Pearson chi square is 0.156 (p>0,05).

There is no effect of pulp capping treatment on quality of life related to oral health at dental hospital UMY based on gender.

Table 7. Effect of indirect pulp capping treatment on patient quality of life based on age

| 50 | | | |
|-------------|---------|----|---|
| | Value | df | Asymptotic Significance (2-sided) |
| Pearson | | | |
| Chi-Square | 23.000a | 7 | 0.002 |
| Likelihood | | | |
| Ratio | 13.59 | 7 | 0.059 |
| Linear-by- | | | |
| Linear | | | |
| Association | 0.209 | 1 | 0.647 |
| N of Valid | | | |
| Cases | 23 | | |

Based on the table above, the asymp. Sig for Pearson chi square is 0.002 (p<0.05). Therefore, there is an influence of pulp cap treatment on quality of life related to oral health at dental hospital UMY based on age.

Table 8. Effect of indirect pulp capping treatment on patient quality of life based on education level

| | Value | df | Asymptotic Significance (2-sided) |
|------------------|-------|----|---|
| Pearson Chi- | vulue | ui | (2 51404) |
| Square | 209a | 1 | 0.648 |
| Continuity | | | |
| Correctionb | 0 | 1 | 1 |
| Likelihood Ratio | 0.382 | 1 | 0.537 |
| Fisher's Exact | | | |
| Test | | | |
| Linear-by-Linear | | | |
| Association | 0.2 | 1 | 0.655 |
| N of Valid Cases | 23 | | |

Based on the table above, the asymp. The sig for Pearson chi square is 0.648 (p>0.05). Therefore, there is no effect of pulp cap treatment on quality of life related to oral health at dental hospital UMY based on education level.

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Table 9. Effect of indirect pulp capping treatment on patient quality of life based on the number of teeth treated

| | | | Number | |
|-----------|----------|-------------|----------|--------|
| | | | of | OHRQoL |
| | | | threated | |
| | | | teeth | |
| | Number | | | |
| Kendall's | of | Correlation | | |
| tau_b | threated | Coefficient | 1 | -0.372 |
| | teeth | | | |
| | | Sig. (2- | | 0.076 |
| | | tailed) | | |
| | | Ν | 23 | 23 |
| | | Correlation | | |
| | OHRQoL | Coefficient | -0.372 | 1 |
| | | Sig. (2- | | |
| | | tailed) | 0.076 | |
| | | Ν | 23 | 23 |

Based on this table, it is found that the Sig 2 tailed value is 0.076 (p>0.05). Therefore, there is no influence between indirect pulp capping treatment and quality of life related to dental and oral health. The negative correlation coefficient value indicates that the influence that indirect pulp capping treatment has on the quality of life related to dental and oral health.

DISCUSSION

The results of the study showed that there was no effect of indirect pulp capping treatment on quality of life related to oral health based on gender. The quality of life of patients undergoing indirect pulp capping treatment tends to be the same for male and female patients.

Based on the results of the analysis carried out, it is known that there is an influence of indirect pulp capping treatment on quality of life related to oral health based on age (p< 0,05). In this study, the patient's age affected the quality of life after undergoing indirect pulp capping treatment. Patients aged 24 years had a good quality of life as much as 30.4%, while patients aged 37 years had a good quality of life with a percentage of 4.3%. Patients who have a moderate quality of life are patients aged 25 years. The results of the analysis also showed that there was no effect of indirect pulp cap treatment on quality of life related to oral health based on education level. The results of this study show that patients who have a high school or bachelor's degree education both have a good quality of life related to dental and oral health. There were only 2 respondents who had a bachelor's degree level of education and had a moderate quality of life.

Respondents in this study consisted of respondents who had varying numbers of teeth treated. The results of the study showed that the number of teeth treated had no effect on the quality of life of patients undergoing indirect pulp capping treatment. There are patients with 1 tooth treated who have a moderate quality of life and there are also patients with 3 teeth treated who have a moderate quality of life.

Some of the respondents in this study also used removable dentures, namely 21.7%. The research results showed that even though the respondents wore removable dentures, however respondents did not experience difficulty in speaking. This is known from the results of the analysis of the OHRQoL questionnaire item 1 which shows that respondents with dentures do not experience difficulty speaking, while there is 1 respondent who experiences difficulty speaking even though he does not wear dentures.

CONCLUSION

Based on the research results obtained, the following conclusions are: The patients Gender, education level, and number of teeth treated have no influence, while age has an influence on quality of life.

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