

Motivational Interviewing Counseling as an Effort to Increase Self Efficacy of Oral Health in Adolescent

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Abstract:- Adolescence is a transitional phase between childhood and adulthood with a marked period of significant caries activity. Efforts to overcome this problem can be overcome through health education approach. However, conventional health education that has been applied only focuses on increasing patient awareness of the severity of a disease problem by providing information or advice, this approach in motivating patients is still considered ineffective. Motivational interviewing counselling technique to increase patients intrinsic motivation in changing behavior. The purpose to produce a motivational interviewing counselling module as a guideline for dental health promotion and analyze the effectiveness of MI counselling in increasing adolescent oral health self-efficacy. The research method used is Research and Development (R&D) and test model using quasi-experiment design (pre and post with control group design). The research sample was divided into 2 groups, namely 40 intervention and control groups. The data were tested using intraclass correlation coefficient, Paired t-test, Independent t-test, Man Whitney, and Wilcoxon. **Result:** MI counselling is relevant as a model of dental health education ($p=0,006$). Besides, it is more effective to increase adolescent self-efficacy ($p=0,011$) and decreasing plaque index score ($p<0,001$). MI intervention has the potential to increase self-efficacy adolescent oral health.

Keywords:- Motivational Interviewing, Counseling, Self Efficacy, Oral Health, Adolescent.

I. INTRODUCTION

Adolescent dental health in Indonesia is a problem that needs attention, especially those related to dental caries and gingivitis. National data according to the 2018 Basic Health Research, the 10-14 year age group has about 57.6% of dental disease[1]. Oral diseases can be prevented by implementing oral hygiene behaviours, one of which is the practice of brushing teeth in the right way[2].

Adolescence is a period of transition from children to adults. Adolescents need to be considered as targets of dental health promotion because the behaviors that are formed during adolescence will have an impact on their adult life[3]. The approach to the promotion of dental health through dental health education that has been going on so far only focuses on providing advice and information with a one-way approach, disseminating information through pamphlets,

posters, and campaign media, so that health workers consider themselves to be experts[4]. Previous research has suggested that conventional health approaches are less effective in motivating patients and rarely implicate ongoing behavior change[5][6][7].

Motivational interviewing is a counselling method that is directive in nature to generate intrinsic motivation in changing behaviour[8]. MI is different from conventional health education, the application of MI involves listening skills, reflecting on, respecting autonomy and giving someone the confidence to change[9].

MI has a strong empirical basis for application with adolescence. MI is considered to be an effective method applied in this age group[10]. Randomized controlled trials (RCT) demonstrate MI's efficacy in reducing caries and improving brushing among low income children[11][12]. A third RCT showed improved brushing with no effect on caries, but had low treatment fidelity[13]. However, MI results also showed insignificant results on the prevention of dental caries in 18 years olds[14]. The potential of MI in improving oral health care is still controversial, with mixed results. Therefore, further research is needed on MI for the promotion of dental health.

The objectives of this study were 1) to produce a motivational interviewing counseling module, 2) To analyze the application of MI to increase self-efficacy and oral hygiene status of adolescents. Previous studies have reported that self-efficacy is related to dental health care. Thus, there is still a lack of research related to adolescent self-efficacy in maintaining dental health[15]. Then the application of MI is connected as an effort to increase self-efficacy using a self-efficacy scale for oral health behavior (SEOH) questionnaire[3]. Individuals with positive self-efficacy will tend to take action according to their abilities to achieve certain goals[16].

II. METHODOLOGY

The method used in this research is Research and Development (R&D), which is used to produce a motivational interviewing counselling module as a guideline for dental health promotion and test the effectiveness of MI in increasing oral health self-efficacy. The research and development procedure includes 5 steps, as follows: 1) information gathering, 2) model design, 3) expert validation and revision, 4) model trial, and 5) model result[17].

The research design was a quasi-experiment (pretest and post-test with control group design). Respondents consisted of 80 young adults aged 12-13 years. The sample size was calculated based on the table of sample size estimates by Rigau-Gay, et al[18], with $\alpha = 0.05$ and power = 0,80. The minimum sample size needed is 80. The sample is divided into two groups, namely 40 students for the intervention and control groups. Students were gathered from junior high schools in Semarang. Purposive sampling was used to select students in this study.

The instrument for measuring self-efficacy uses a self-efficacy scale for oral health behavior (SEOH) questionnaire. While the feasibility of the model is measured by questionnaire.

The research data used a ratio scale, intraclass correlation statistical test was implemented to determine the feasibility of the module. While the normality test used the Shapiro Wilk test regarding the number of respondents is less 50. The effectivity test on the paired group normal data used dependent sample test and for the unpaired group, it used the independent sample test.

III. RESULT AND DISCUSSION

A. Data Collection

The results of data collection were carried out through the interview method and a systematic literature review concluded that adolescence is a very varied period, this phase is often referred to as a very crucial phase in human life. Efforts to improve the oral health of adolescents require dental health education methods that are adapted to the characteristics of adolescents by recognizing, respecting and protecting during adolescent development.

B. Design an Build

The design of the motivational interviewing counselling module refers to the motivational interviewing theory by William R. Miller and Stephen Rollnick (2013). The module design is based on the result of data collection. The substance of the module contains the characteristics of adolescents, dental health problem in adolescents, stage of motivational interviewing counselling, how to brush teeth correctly, and individual readiness strategies for change. This module is a reference for dental and oral therapists in carrying out dental health promotion using a dental health education approach through motivational interviewing counselling.

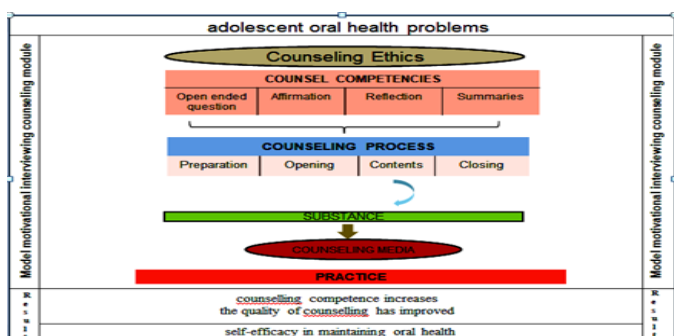


Fig 1:-MI Counselling module in oral health maintenance

C. Expert Validation

Table 1 shows that the validation results from experts have a p-value of 0,006(<0,05), which means that the motivational interviewing counselling module in the formation of correct brushing behavior in adolescents is relevant as a method of dental health education.

| Expert Validation | | | |
|-------------------|----|------|---------|
| | N | F(%) | p-value |
| Relevant | 10 | 100 | 0,006 |
| Irrelevant | 0 | 0 | |

* Intraclass correlation coefficient

Table 1: - Expert Validation

D. Experimental Design

- Intervention Group (Counseling motivational interviewing)

Respondents received motivational interviewing counselling for 15-20 minutes delivered by dental therapist. The counselling uses open-ended questions such as:

- 1) Tell me about how healthy your teeth and mouth are?
- 2) What do you want for oral health?
- 3) How to maintain oral hygiene?
- 4) What is the most feared thing that happens to oral health?
- 5) How do you brush your teeth?
- 6) What are the benefits if you do regular dental health care?
- 7) What are the disadvantages if you don't get dental health care?

The question asked are using MI skills: open-ended question, affirmation, reflection, summaries. The counselling process is assisted by counselling media in the form of leaflets, video and phantoms. Respondents after receiving MI counselling were given leaflets as additional information at home.

- Control Group (Conventional Health Education)

Respondents received counselling for 20 minutes as a group. Counselling materials on how to brush teeth properly, oral health problems in adolescents, healthy food for dental health. At the end of the counselling session, respondents were given leaflets as additional information for themselves.

E. Model Test

A total of 80 adolescent were recruited. In summary, age 12 years was 21 (52,5%) and 22 (55%), 13 years of age were 19 (47,5%) and 18 (45%) in the intervention and control group. Male and female sex 20 (50%) in both groups. Table 2 shows that there is no significant difference between the two groups in the characteristic data ($p > 0,05$)

| Variable | Intervention | | Control | | p-value |
|--------------|--------------|------|---------|----|---------|
| | N | % | N | % | |
| Age | | | | | |
| 12 years old | 21 | 52,5 | 22 | 55 | 0,852 |
| 13 years old | 19 | 47,5 | 18 | 45 | |
| Gender | | | | | |
| Male | 20 | 50 | 20 | 50 | 1,000 |
| Female | 20 | 50 | 20 | 50 | |

p-value were obtained through Chi-Square test

Table 2:- Respondent Characteristic Data

Table 3 shows the data normality test. Self-efficacy were mostly abnormally distributed with a p-value < 0,05, it can be concluded that the distributed data is not normal, then it will be continued with nonparametric tests. Plaque indeks with p-value > 0,05, it can be concluded that the distributed data is normal, then it will be continued with parametric test.

| Variable | p-value | |
|--------------------------------|----------------------|-----------------|
| | Intervention N=40 | Control N=40 |
| Self-efficacy <i>pre-test</i> | 0,178 | 0,060 |
| Self-efficacy <i>post-test</i> | 0,001 | 0,031 |
| Plaque indeks <i>pre-test</i> | 0,083 | 0,604 |
| Plaque indeks <i>post-test</i> | 0,065 | 0,071 |

*Shapiro-wilk

Table 3:- Data Normality Test

Table 4 shows the paired-data effectivity test. It shows that the p-value of the intervention group is 0,001 (p<0,05), meaning the motivational interviewing counselling effectively improves adolescents self-efficacy. The p-value of the control group is 0,001 (p<0,05) meaning that conventional health education method is effective increasing adolescent self-efficacy.

The effectivity test of adolescents plaque index score data show that the p-value of the intervention group is 0,001 (p<0,05) meaning that the motivational interviewing counselling effectively decreasing plaque index score in adolescent. The p-value of the control groups is 0,001 (p<0,05) indicating conventional health education method decreasing the adolescent plaque index score.

| Variable | | Paired-Data Test | | | |
|----------------------|------|------------------|-------------|-------|---------|
| | | n | Mean±SD | Delta | p-value |
| Self-efficacy | | | | | |
| Intervention | Pre | 40 | 33,33±3,970 | 3,35 | 0,001 |
| | Post | 40 | 36,68±2,877 | | |
| Control | Pre | 40 | 31,00±3,994 | 3,15 | 0,001 |
| | post | 40 | 34,15±4,487 | | |
| Plaque index | | | | | |
| Intervention | Pre | 40 | 71,43±15,43 | 47,70 | 0,001 |
| | Post | 40 | 23,73±7,906 | | |
| Control | Pre | 40 | 89,73±4,139 | 36,52 | 0,001 |
| | post | 40 | 53,20±16,06 | | |

*Wilcoxon test *Paired samples test

Table 4:-Paired-Data Effectivity Test

Table 5 shows the non-paired data test on its effectivity. The information obtained from the table is that the p-value is 0,011 (p<0,05), meaning that the motivational interviewing counselling is more effective in improving adolescent self-efficacy compared with conventional health education. The effectiveness test the adolescent plaque index score data shows that p-value is 0,001 (p<0,05) meaning that the motivational interviewing counselling is more effective than conventional health education.

| Variable | N | Non-paired data effectivity test | | |
|----------------------|----|----------------------------------|-------|---------|
| | | Mean | SD | p-value |
| Self-efficacy | | | | |
| Intervention | 40 | 36,68 | 3,954 | 0,011 |
| Control | 40 | 34,15 | | |
| Plaque index | | | | |
| Intervention | 40 | 23,73 | 3,297 | 0,011 |
| Control | 40 | 53,20 | 7,906 | |

**Man Whitney **Independent Sample Test

Table 5:-Non-Paired Data Effectivity Test

F. Model Result

The result of the model is a module shown in figure 2, which is a guideline for dental therapist as a recommendation to promote oral health using the motivational interviewing counselling method.



Fig 2:- Module

IV. DISCUSSION

Based on the results of the study, it was concluded that to increase the self-confidence and intrinsic motivation of adolescents in maintaining oral hygiene, dental health education efforts were needed. Choosing the right dental health education approach is very helpful in increasing self-efficacy for adolescents in maintaining oral health[19][20].

Implementation of motivational interviewing counselling in improving self-efficacy and oral hygiene status of adolescents through several stage and evaluation stage. The implementation of MI counselling is carried out by counsellors through skills such as open questions, reflective listening, affirmation, and summarization to help adolescents by identifying and exploring dental health problems.

Motivational interviewing (MI) is a client-centred counseling technique to increase the patient’s intrinsic motivation[8]. The results of research conducted by Wu Lingli et al, 2017 state that the motivational interviewing method is effective in bringing about positive changes in dental health behaviour and preventing dental caries in adolescents[21]. Expert validation results show that the motivational interviewing counselling module is 90% relevant/appropriate as a guide for dental health education for adolescents. The first aspect that determines the quality of product development is validity. Validity refers to the suitability, significance and usefulness of the conclusions

made by the researcher. Before the product is used, of course its validity must be reviewed based on certain criteria[22]. The process of expert validation is important in developing products to produce products that are useful in improving the quality of education[23]. The success of MI counselling cannot be separated from the client-centred (patient-directed) counselling style to encourage intrinsic motivation.

Motivational interviewing counselling is applied to adolescents to increase self-efficacy. In this study, self-efficacy towards dental health maintenance was identified using the self-efficacy scale for the oral health behaviour questionnaire (SEOH). Responses to each question were scored using a four-point likert scale (1= not confident, 2=lack of confidence, 3=quite confident, and 4= completely. The result of the Mann Whitney statistical test showed (p-value = 0,011; table 5). Virtue S.M, Shearer B, and Bhopathi stated that MI can improve oral health behaviour through increasing self-efficacy[24].

According to Bandura, self-efficacy is the belief that a person has that he is able to do something to achieve goals and overcome obstacles[25]. Sources of one's self efficacy can be obtained, changed, enhanced or passed down through one or a combination of four sources namely the experience of mastering an achievement, representative experience, social persuasion and emotional generation[26].

In this study, the increase in adolescent self-efficacy occurred through social persuasion, counselor persuasion by reflecting and respecting autonomy, so that adolescents' confidence in their ability to take necessary actions to improve oral health maintenance was embedded. Individual with stable beliefs tended to have better oral health than those who did not, especially in their self-assessment of oral health, whereas individuals with less stable belief tended to delay dental care[27].

The motivational interviewing counselling applied decreasing oral hygiene index score in adolescent, the results of the independent samples t-test showed (p-value 0,001; table 5). The plaque index score of adolescent students decreased because they felt confident that they would be able to change their dental health behaviour by practising the correct way of brushing their teeth and believed that the changes made were a value for themselves. Actions on how to brush their teeth correctly could reduce the index score index. Research by Deinzer, R et al, 2019 proved that brushing teeth with the correct technique will improve the oral hygiene status of adolescents[28]

V. CONCLUSION

Adolescents are an age group that is prone to dental caries, so efforts to deliver proper dental health education are needed. Within the limitations and based on the results of this study, the conclusion can be drawn that motivational interviewing counselling is more effective as a method of dental health education compared to conventional health education. MI counselling can increase adolescent self-efficacy in maintaining oral health.

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