The Effect of Motivation Enhancement Therapy on Proactive Coping Smoking Cessation Among Adolescents

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Abstract

Objective: This study aimed to investigate the effectiveness of Motivation Enhancement Therapy (MET) in improving proactive coping strategies related to smoking cessation among adolescents.

Method: A quasi-experimental pre- and post-test design with two groups was employed. A total of 144 adolescents aged 15–19 years who were active smokers were selected using purposive sampling. The sample was divided evenly into an intervention group and a control group. The intervention group received MET for one month, focusing on strengthening internal motivation and proactive coping strategies to support smoking cessation. The Proactive Coping Inventory (PCI) was used to measure changes in coping abilities before and after the intervention. Post-test measurements were conducted two weeks after the treatment. Data were analyzed using paired and independent sample t-tests to compare outcomes within and between groups.

Results: The findings revealed that participants in the MET group experienced a statistically significant increase in proactive coping scores compared to those in the control group, with a p-value of 0.00 ($p < 0.05$). This suggests that MET had a meaningful impact on adolescents' ability to proactively cope with smoking cessation challenges.

Conclusion: This study provides strong evidence for the efficacy of MET in promoting smoking cessation and enhancing proactive coping among adolescents. By addressing both motivational and coping factors, MET can empower adolescents to make positive changes in their lives and achieve long-term smoking cessation

Keywords: Motivation Enhancement Therapy, proactive coping, smoking cessation, adolescents, behavioral intervention

INTRODUCTION

Smoking is one of the detrimental effects of the actions of adolescents that are frequently observed today. Nowadays, a lot of adolescents smoke, so smoking is not just something that adult people do. Based on the latest health survey, the prevalence of smoking in Indonesia is increasingly worrying. A survey by the Indonesian Central Statistics Agency showed that the percentage of the population aged >15 years who smoke in Indonesia increased from 28.26% to 28.62% in 2022 to 2023 and around 70 million people are active smokers, of which almost 7.5% are children and adolescents (BPSI. 2024: 1). Meanwhile, SKI 2023 data shows that the 15-19 age group is the largest group of smokers (56.5%), followed by the 10-14 age group (18.4%) (Ministry of Health, 2024). Adolescent smoking behaviour is impacted by both the environment and the individual, and this is not new for adolescents. It is not uncommon to observe adolescents still wearing high school uniforms and smoking with friends or alone, publicly or discreetly (Siwi et al., 2020). Adolescents are encouraged to smoke for a variety of reasons, including a desire to appear cool, macho, mature, loyal companions, relief

from worry and boredom, and the belief that smoking helps reduce stress. Previous research has found that sentiments of inferiority contribute to low teenage optimism. Adolescents receive less attention due to poor cultural culture and a lack of supervision (Barari, 2021).

It is thought that smoking behaviour is predicted by coping strategies. A proactive and constructive approach to problem-solving is known as proactive coping (Lee et al., 2017). A more sophisticated approach to prevention and therapy is proactive coping (Sleczka et al., 2016). Behavioural techniques that concentrate on upcoming stresses, stop unwanted habits, and build up resources to handle future issues are referred to as proactive coping. Adolescents with positive proactive coping are more likely to avoid or even quit smoking by providing motivation can produce significant positive effects on abstinence and smoking reduction by increasing optimism and self-efficacy, information support, instrumental support and emotional support (Opeyemi, 2021). Proactive coping refers to the ability to anticipate and plan for stressful situations, thereby reducing their negative impact (Starchenkova, 2020). When applied to smoking cessation, it involves developing strategies to manage cravings, avoid high-risk situations, and cope with potential relapses. Individuals who employ proactive coping techniques are more likely to successfully quit smoking and maintain abstinence (Hadiyani et al., 2023).

Adolescents who have conflicting emotions about decreasing back on or quitting substance use might find relief with motivational enhancement therapy (MET), a quick, time-limited psychotherapy technique (Welsh et al., 2020). MET guides clients through directed and non-authoritarian motivational interviewing toward behaviour change, addressing hesitation about quitting and aiming to build motivation to change. It is a theory development tool developed to assist counsellors in developing commitment and achieving behaviour change (Steele et al., 2020). Motivational enhancement therapy is defined as a client-centred, directive intervention that assists individuals in recognizing and overcoming their ambivalence regarding a change in themselves, hence facilitating behaviour improvement (Kumar et al., 2021). It employs techniques from client-centred counselling, cognitive therapy, systems theory, and the social psychology of persuasion. MET aims to boost a client's motivation and commitment to reduce or stop smoking (Winters et al., 2021). Research conducted in India on TB patients showed that increasing motivation is an effective strategy for quitting smoking (Kumar et al., 2020).. Motivational enhancement treatment aims to reduce ambivalence and increase self-efficacy, promoting abstinence from alcohol and marijuana (Kumar et al., 2021; Steele et al., 2020).

MET focused on increasing motivation and commitment, while proactive coping provided individuals with tools and strategies to effectively manage challenges. Together, they increased the likelihood of successful smoking cessation by addressing the emotional and practical aspects of smoking cessation. Smokers who engaged in motivational enhancement and proactive coping were more likely to overcome barriers and maintain long-term abstinence. While MET has shown promise in addressing motivation for change, its impact on proactive coping strategies among adolescent smokers remains understudied. This research aims to fill this gap by examining the specific effects of MET on proactive coping and its subsequent influence on smoking cessation.

METHOD

Study Design

This study was quasy experiment, a pre-post-test of two groups approach. The research location was at Senior High School (SMK Negeri 1 Pangalengan), West Java, Indonesia. The research was conducted for 4 weeks.

Population and Sample

Population in this study was student at Government Senior High School 1 (SMK Negeri 1) Pangalengan. Sampling technique in this study used purposive sampling. The sample size was calculated through G-Power software

version 3.1.9.7 using t-test, means: difference between two independent means (two groups), assuming two tails, α = 0.05, effects size: 0.5, power level: 0.8, e plus attrition rate so that the number of samples was 144. Inclusion criteria for participants were adolescents aged 15-19 years, Current smokers (defined as smoking at least one cigarette per week) and exclusion criteria: Severe mental health disorders and substance abuse disorders other than nicotine.

Instrument

The Proactive Coping Inventory (PCI) was developed by Schwarzer and Taubert in 1999. This tool assesses proactive coping strategies and related constructs, providing insight into how individuals anticipate and prepare for potential challenges. The PCI consists of 55 items divided into 7 subscales: Proactive Coping (14 items), Preventive Coping (10 items), Reflective Coping (11 items), Strategic Planning (4 items), Instrumental Support Seeking (8 items), Emotional Support Seeking (5 items), Avoidance Coping (3 items). Total score for each subscale by summing the item responses. Higher scores indicate stronger tendencies in the respective coping strategy. Subscales show high internal consistency, with Cronbach's alpha values ranging between 0.70 and 0.90, depending on the subscale.

Intervention Procedure

The intervention group was given MET, starting with participants being formed into small groups consisting of 7-8. Each group will be led by one enumerator. The first week: pre-test, Engagement and Building Rapport. Assessment and Eliciting Motivation, the second week: Developing Discrepancy, Supporting Self-Efficacy, the third week: Goal Setting and Action Planning, the fourth week post-test. The instrument used PCSC consists of 36 items and has six subscales (proactive coping, preventive coping, reflective coping, strategic planning, support seeking, and avoidance) with a reliability test of 0.971. The statistical test used is the dependent t-test/paired sample t-test (normally distributed data) with a significance level of 95% (α = 0.05).

Data Analysis

Data were analysed using Independent Sample T-Test to compare PCI scores before and after the intervention.

RESULT

Characteristics of Respondents

The results of the study of respondents' characteristics related to age, educational level, first time smoking and cigarettes consumed per day are in the following table:

Table 1. Characteristics of Respondents

Characteristics	Intervention Group F (%)	Control Group F (%)	*P*-Value
Age (Mean ± SD)	1.72 ± 0.701	1.88 ± 0.521	0.154
Educational Level			
Class X	34 (47.22)	32 (44.44)	0.130
Class XI	38 (52.77)	40 (55.56)	
First Time Smoking			
Elementary School	12 (16.67)	11 (15.27)	0.130
Junior High School	32 (44.44)	31 (43.06)	
Senior High School	28 (38.89)	30 (41.67)	
Cigarettes Consumed Per Day			
1-10 Cigarettes Per Day	48 (66.66)	46 (63.89)	0.153

11-20 Cigarettes Per Day	22 (30.56)	26 (36.11)
>20 Cigarettes Per Day	2 (2.78)	0

Based on table 1, it shows that the mean(SD) age of respondents is 1.80 ± 0.620. Most (54.17%) are in level 11. and the first time smoking was mostly when they were in junior high school (43.75%), with the number of cigarettes consumed per day being less than 10 cigarettes (65.28%).

Proactive coping with smoking cessation in the control and intervention groups

The results of the PCSC value study of the intervention group and control group before and after MET are shown in the table below:

Table 2. Proactive coping with smoking cessation in the control and intervention groups

Variable	Pre-test (Mean ± SD)	Post-test (Mean ± SD)	T	Mean difference	p value
PCSC					
control group	74.08 ± 17.093	71.56 ± 15.926	0.742	3.395	0.461
intervention group	86.18 ± 20.429	105.82 ±18.445	-6.190	3.173	0.000
Support seeking					
control group	20.08 ± 5.166	20.54 ± 4.362	-0.440	1.045	0.662
intervention group	25.40 ± 6.652	31.76 ± 6.416	-3.975	1.187	0.000
Reflective coping					
control group	15.34 ± 3.756	14.78 ± 4.067	0.686	0.817	0.496
intervention group	17.60 ± 4.629	20.96 ± 4.370	-4.646	0.723	0.000
Proactive coping					
control group	12.38 ± 3.238	12.08 ± 3.795	0.393	0.763	0.696
intervention group	14.86 ± 3.747	17.74 ± 3.567	-4.456	0.646	0.000
Strategic planning					
control group	12.32 ± 3.067	12.28 ± 3.283	0.62	0.650	0.951
intervention group	14.66 ± 3.972	17.80 ± 3.747	-5.152	0.609	0.000
Preventive coping					
control group	6.52 ± 1.919	5.92 ± 1.904	1.606	0.374	0.115
intervention group	6.70 ± 2.053	8.78 ± 1.657	-5.967	0.349	0.000
Avoidance					
control group	6.14 ± 1.59	5.96 ± 1.829	0.503	0.358	0.617
intervention group	6.96 ± 1.884	8.78 ± 1.877	-5.774	0.315	0.000

Table 2 shows that the PCSC score before and after MET was given in the intervention group experienced a mean increase of 19.64 with a t value = -6.190 and a p-value of 0.000. While in the control group, there was a mean decrease of 2.52 t = 0.742 and a p-value = 0.461

The effect of motivational enhancement therapy on proactive coping smoking cessation

The effect of MET administration on the intervention group can be identified from the differences between the control group and the intervention group as shown in the table below:

Table 3. The effect of motivational enhancement therapy on proactive coping smoking cessation

Variable	Mean Difference	T	Df	95% CI		p-value
				Lower	Upper	
PCSC	34.260	9.941	98	27.421	41.099	0.000

Based on table 3 shows the results of the study distinguishing the intervention group and the control group with the Independent Sample T-Test analysis. A significance value (2-tailed) of 0.000 was obtained, this indicates that there is a significant effect of motivation enhancement therapy intervention on proactive coping smoking cessation. This shows a significant difference after the MET intervention was carried out on the control group and the intervention group.

DISCUSSION

Proactive coping smoking cessation in adolescents

Coping that is done before a stressful situation arises is called proactive coping (Syarif, 2019). The results of this study indicate that most smokers have proactive coping with smoking cessation with lower values than after the intervention. The results obtained in the intervention group were an mean pre-test of 86.18 (SD = 20.429) and an average post-test value of 105.82 (SD = 18.445). According to previous research, adolescence, the period between the ages of 13 and 18, is a period of significant growth and development for the mental, physical, social, and emotional well-being of adolescents. During adolescence, a person's emotions may be inconsistent and unpredictable (Lauriola et al., 2023). Immature development of the adolescent brain means that sentiment and emotions can override common sense, causing them to make bad decisions such as smoking. That is why adolescent behaviour can be influenced by a person's ability to control their feelings and emotions (Nisak, 2022). Previous research says that adolescents who use adaptive coping mechanisms can adapt well, think about the future and have good relationships, so they can solve their problems well. Individuals can adapt to changes that occur and do not cause health problems, then this coping mechanism is successful, but if the coping mechanism fails to adapt, it can cause stress (Bondarchuk et al., 2023). If an individual has ineffective proactive coping, it will result in maladaptive coping, making it difficult to reduce smoking habits, and the level of addiction will be higher. So proactive coping with smoking cessation is needed to improve coping in adolescent smokers (Hadiyani et al., 2023). All domains in PCSC showed significant increases before and after MET administration.

Support Seeking

Motivational Enhancement Therapy (MET) and support seeking are interconnected concepts that can significantly impact an individual's journey towards behavioural change, such as smoking cessation. MET is a counselling approach designed to increase intrinsic motivation to change (S. Kumar et al., 2021). It works by exploring and resolving ambivalence, enhancing self-efficacy, and developing a strong commitment to change (Jennifer et al., 2020). The results of the support-seeking study showed that after the intervention there was a mean increase of 5.32 with a p-value of 0.00. MET and support-seeking are complementary strategies that can enhance the effectiveness of smoking cessation interventions. By addressing ambivalence, boosting self-efficacy, and promoting social support, MET can help individuals overcome challenges, maintain motivation, and achieve long-term abstinence.

MET can positively impact various PCSC domains, including: support seeking. Providing MET can increase self-awareness (Starchenkova, 2020). MET helps individuals recognize their need for support and the benefits of seeking help from others. MET can help reduce the shame and stigma (Barta & Kiropoulos, 2023) associated with seeking support, making individuals more likely to reach out to others. MET can help individuals develop effective communication skills (Fahmi & Hapzi Ali, 2022), which are essential for building and maintaining strong social relationships.

Reflective coping

Motivation can encourage individuals to reflect on their thoughts, feelings, and behaviours, which is a key component of reflective coping. Reflective coping is a coping strategy that involves actively thinking about stressful situations and developing effective coping strategies (Hadiyani et al., 2023). It involves seeking information, evaluating options, and planning courses of action Motivation boosting can help individuals develop effective problem-solving skills, which can be applied to a variety of challenges and stressors(S. Kumar et al., 2021). Increased motivation can also increase self-efficacy, which can lead to increased confidence in one's ability to cope with stress and adversity.

Proactive coping, Strategic planning and avoidance

MET increases in Strategic Planning where increased motivation can help individuals set clear and achievable goals, which is an important step in effective planning (Fahmi & Hapzi Ali, 2022). Increased motivation will also develop specific action plans to achieve goals, including identifying potential barriers and developing strategies to overcome them. MET can increase self-efficacy, which is important for proactive coping. Thereby helping individuals develop effective problem-solving skills, which can be used to anticipate and cope with potential stressors and develop a more positive outlook on life, which can reduce stress and improve coping skills(Voica et al., 2020). Preventive Coping can also be enhanced by MET, helping individuals adopt healthy behaviors, such as regular exercise and a balanced diet, which can reduce the risk of stress and disease and improve stress management techniques.

Differences in proactive coping smoking cessation before and after intervention

The results of this study indicate that there is a significant difference with PCSC after MET was given, a significance value with a p-value of 0.000 was obtained. MET is defined as a systematic intervention approach to generate change based on the principles of motivational psychology and is designed to produce fast and internal motivation (Singh et al., 2019). In line with previous research that MET aims to maintain total abstinence by teaching and fostering self-monitoring and self-management with the use of smoking time (Coriale et al., 2019). Motivational enhancement therapy was given in five sessions aimed at building strong motivation with respondents, increasing the desire to quit smoking and educating about future treatment compliance. Proactive coping smoking cessation in adolescents must be possessed by an adolescent in order to be able to break free from bad habits such as smoking. This is in line with previous research conducted by Banjo and Kester (2021) that there was a significant difference before and after being given motivation enhancement therapy intervention, in their research it showed that MET was effective in overcoming smoking habits (Banjo & Kester, 2021). This study is also in line with the results of Douglas Sellman's study (2022), that there was a significant change before and after being given motivation enhancement therapy intervention with a p-value (<0.05). The results of this study showed that the control group did not experience an increase in PCSC scores with a p-value of 0.461. This is because interest in viewing decreased and did not increase respondent motivation.

Differences

The results of the independent sample T-test analysis concluded that the average value of the intervention group was greater than the control group. The significance value (2-tailed) obtained

showed that there was a significant effect of motivation enhancement therapy intervention on proactive coping smoking cessation obtained a p-value of 0.000 (α <0.05). This shows a significant difference after the MET intervention was carried out on the control group and the intervention group. So it can be concluded that H0 is rejected and Ha is accepted, meaning that there is an effect of motivation enhancement therapy on proactive coping smoking cessation in adolescents at SMAN 1 Pangalengan. This study is in line with the results of Banjo and Kester's study (2021), concluding that MET is effective in overcoming smoking habits (Banjo & Kester, 2021).

CONCLUSION

This study provides strong evidence for the efficacy of MET in promoting smoking cessation and enhancing proactive coping among adolescents. By addressing both motivational and coping factors, MET can empower adolescents to make positive changes in their lives and achieve long-term smoking cessation for future research The effectiveness of combining MET with other evidence-based interventions, such as nicotine replacement therapy or cognitive-behavioural therapy, should be explored

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Conflict of Interest

The author declares no conflict of interest in the conduct or publication of this research.

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