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PSYCHOLOGICAL APPROACH TO SMOKING RELAPSE PREVENTION : A SYSTEMATIC REVIEW

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ABSTRACT

Background: An estimated that the number of smokers reaches 1.3 billion daily smokers worldwide. Some countries show a high prevalence of cigarette consumption among men, such as Russia 59.0%, Ukraine 49.4%, Morocco 45.4%, China 47.6%, Indonesia 76.2%, and Pakistan 41.9%. Thus, Asian countries such as Indonesia consume more cigarettes than Western countries. In the Western countries, there are some countries with the highest mortality rates caused by smoking for instance the United States of 492,400 annual mortality rates, and another one is Russia with more than 309,500 annual mortality rates. The next country in the Asia region with the highest annual mortality rate led by Indonesia, which is more than 225,700 annual mortality rates, then China has more than 195,200 annual mortality rates. One of the efforts to stop smoking is to conduct behavioral/psychological approaches such as counseling. Counseling or therapy can increase the tendency to stop smoking compared to not doing counseling. Objectives: to provide comprehensive information about psychological approaches to relapse prevention such as CBT, hypnosis therapy, positive psychology, individual counseling and group therapy. Result: this study found 18 literature that discussed psychological approaches is evidenced to relapse prevention about 20-45% single or multi counseling and additional pharmacological treatment. Behavioral approaches such as counseling can increase the tendency to relapse prevention compared to not doing counseling and the combination of two behavioral treatments in one intervention will produce higher effectiveness, such as CBT plus telephone counselling

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1. INTRODUCTION

An estimated that the number of smokers reaches 1.3 billion daily smokers worldwide. Some countries show a high prevalence of cigarette consumption among men, such as Russia 59.0%,

Ukraine 49.4%, Morocco 45.4%, China 47.6%, Indonesia 76.2%, and Pakistan 41.9% (Organization, 2018). Thus, Asian countries such as Indonesia consume more cigarettes than Western countries. Indonesia is the country with the highest number of smokers in ASEAN, amounting to 65.2 million people. This figure is equivalent to 34.0% of the total population of Indonesia. The Philippines followed it with the second-highest number of smokers, 16.5 million people, or 16.0% of the total population. And Vietnam is in the third position with the number of smokers, 15.6 million people, or 16.5% of the total population (Kadata, 2021)

Smoking cigarettes is a risk factor for several of the world-leading causes of death. The smoke had been the second leading risk factor for death globally. And cigarettes have killed more than 8 million people per year around the world. More than 7 million deaths result from direct tobacco use, while around 1.2 million results from passive smoke (Organization, 2019).

In Indonesia, high smoking behavior is followed by high mortality and morbidity. Diseases that occur due to smoking are babies with low birth weight (216,050 from 962,403 cases), chronic obstructive pulmonary disease 284,310 cases, coronary heart disease 183,950 cases, and stroke disease 144,780 cases (INFODATIN, 2013).

Smoking culture is difficult to eliminate even though its effects are visible. Cigarettes have become part of Indonesian society because smoking has been a culture in various organizations and social activities in Indonesia. Cigarettes are easy to get, and cigarettes are sold freely in the community, including young people. People in Indonesia tend to smoke while drinking coffee, hang out with a group, and give cigarettes to someone who is helping as an appreciation.

Another study explained that the factor that influences the readiness to quit smoking is the belief in the benefits of smoking is the main determinant of readiness to smoke. Smokers who feel the benefits or positive impact of quitting smoking will maintain their behavior compared to smokers who do not feel the benefits of quitting smoking (Husna, 2020). In line with the results of this study, in mini research conducted by researchers in Medan, it showed that the smoking behavior of adult women was due to an escape from problems, cigarettes were considered to be able to calm themselves from stress and personal problems and the strong factor of the influence of friends (Afriani et al., 2020)

Start to smoke after stopping in smoking is called relapse. Relapse occurred because of a strong inner desire to smoke. Relapse most often occurs in the first few days of a quit attempt when withdrawal symptoms occur. Thus, over 75.0% of quitters relapse in the first week, and 35.0% of quitters probably relapse after 12 months of staying smoke-free (ENSP, 2017).

Stop smoking Behavioral approaches such as counseling can increase the tendency to stop smoking compared to not doing counseling. Counseling methods for more than 10 minutes affect smoking cessation with an odds ratio of 2.3 (Herman & Sofuoglu, 2010). Meanwhile, Efdadali (2012) states that a behavioral approach with training activities is important to overcome smoking cessation.

Behavioral treatment is one of the complex therapies for smoking cessation programs. Various types of behavioral therapy are motivational treatment, Cognitive Behavior Therapy (CBT), Efficacy of CBT, Individual and group counseling, positive psychotherapy treatments (PPTs), and Brief Advice. Some of the proven behavioral approaches are positive psychotherapy and text message intervention. Positive psychotherapy was proven to sustained smoking abstinence for six months after their quit date by 40.0% (Kahler et al., 2014). Likewise, with text-message intervention through the Happy Quit program, high or low frequency messaging can lead to smoking cessation (Liao et al., 2016).

2. RESEARCH METHODE

The source of the data is collected from NCBI and Google Scholar. The keywords were smoking cessation, behavioral therapy to smoking cessation and psychological approach. National and international journals with inclusion criteria are primary data. The number of journals is reviewed as 18 journals.

3. RESULT AND ANALYSIS

Behavioral Therapy to Stop Smoking

The average success rate of smoking cessation programs using linguistic treatment such as Hypnosis, CBT, The 5As, group, or individual counseling is only about 20.0% to 30.0% success rate. Meanwhile, positive psychotherapy intervention has evidence of a benefit to prevent relapse. In one to four sessions of PPT can reduce smoking behavior by about 40.0%. This percentage is higher than other behavioral interventions such as CBT, group counseling, and individual counseling (Kahler et al., 2014). In addition, the combination of more than one intervention in an intervention showed a high percentage to stop smoking.

Kinds of behavioral approach are Hypnosis approach for smoking relapse prevention consists of two meetings and each meeting has 60 minutes face-to-face sessions and four meetings has 20 minutes follow up phone calls. The results showed that hypnosis warrants further investigation as an intervention for facilitating the maintenance of stopping smoking. Positive psychotherapy and additionally receiving daily texts to remind them of their personal strengths is effective to stop smoking (Kahler et al., 2014).

Success Rates of the Relapse Prevention

Based on several studies that have been carried out on behavioral approaches to quit smoking and prevent smoking relapse, a description of the success of the methods can be seen from the prevalence of quit smoking and the number of counseling sessions.

Table1. Success Rates of the Relapse reversion to Smoking Cessation Method

Source	Country	Intervention	Number of counseling	Longset follow up	Result
Kahler 2015	America	Intervention group positive psychotherapy plus daily texts (PPTs) remainding and Nicotine Replacement Therapy (NRT) Control group : standart smoking cessation counseling	6 session counseling	Follow up at 8, 16, and 26 weeks	prevalence abstinence was 40.0% in PPT-S versus 25.8% in Standart Treatment (ST) at 8 weeks and PPT as 22.9% versus ST 6.5% at 16 weeks
Utap MS, 2019 Malaysia	University Malaya Medical Centre Malaysia	Population 850 Sample: 104 each group Intervention group : 5A model and self helf material)		Follow up at one and four months by telephone cals	Follow up 1 month Intervention group: quit 15 from 77 Follow up 4 month: 13 from 58

		Control group : self help material only without explanation (self help material topics: harmfullness of smoking, benefit quit smoking, tips on quit smoking			Follow up 1 month Control group: quit 8 from 80 Follow up 4 month: 9 from 59
Liao 2018	China	Happy quit (text message) Text message to increase self-efficacy	High Frequency message : 3-5 sms per day for 12 weeks Low frequency message: 3-5 sms per weeks for 12 weeks Control: 1 sms/week	Follow up 4, 12 and 24 weeks	Happy quit programme had a small effect Prevalence rate High Frequency Message (HFM): 6.5% Low Frequency Message (LFM): 6.0% Control : 1.9% Compare the happy quit programme to other smoking cessation tretament
Catley et.al 2012	Missouri, America	Sample : 255 participants Randomized Control Trial with imbalanced randomization (2:2:1) for Motivational intervening (MI), Health Education (HI), and brief advice MI consists of 4 sessions of approximately 20 minutes each conducted in person HE sessions of approximately 20 minutes. In HE counselors deliver health education designed to persuade participants to quit.	MI dan HE 4 session (session 1 and 3 by face to face), session 2 and 4 by phone calls (20 minutes) BA : meet a counselor during smokers are asked (5 minutes)	4 stages of readiness to quit (unmotivated, undecided, motivated, former smokers) over 6 months	The effectiveness of HE dropped substantially in weeks three to12 and remained below the effectiveness of BA from week 12 onward

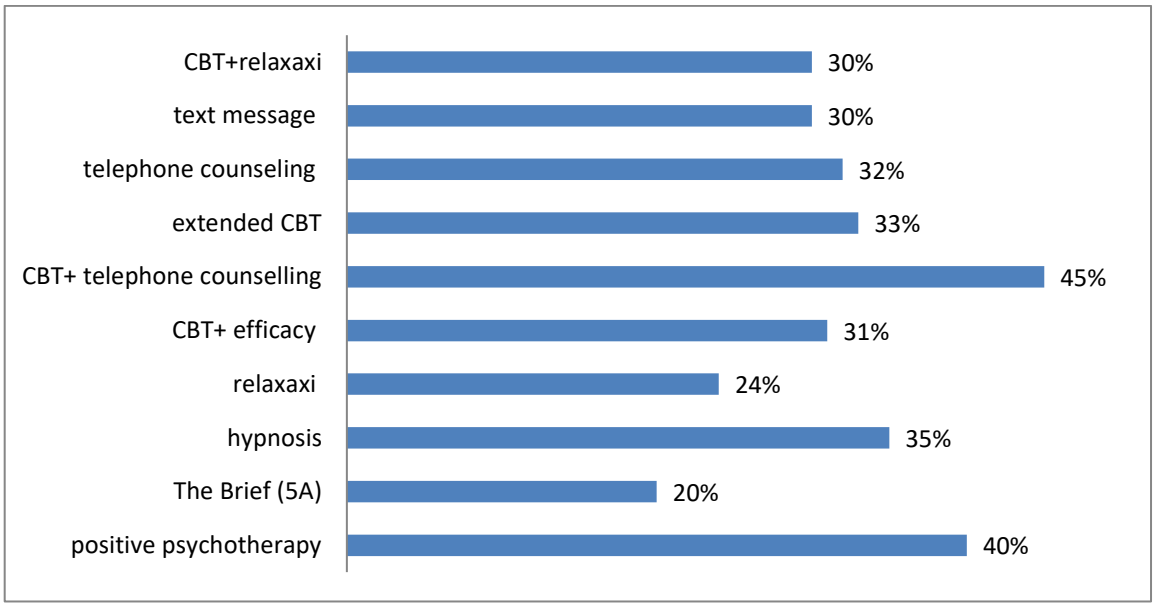
		Brief advice (BA): Participants meet with a counselor for approximately 5 minutes during which they are asked about common smoking related symptoms and are provided with clear, strong, personalized.			
Leontari et.al 2017	Yunani, Greece	Sample : 8 pasticipants Motivational interviewing (based on Bandura theori and health belief model	The intervention consisted of 12 individual counseling	Follow up 3 and 6 monthly	Number of respondent quit smoking : 3 participants
Timothy et.al 2017	San Fransisco America	Sample : 102 Experimental group: Hypnosis intervention Control Group : behavioral relapse prevention intervention	Both relapse perevntion : six sessions 2 sessions for 60 minutes face to face dan 4 session by phone calls	follow up 26 weeks and 52 weeks	Prevalence quit in 26 weeks : Hypnosis 35.0% Behavioral counseling : 42.0 % 52 weeks Hypnosis : 29.0% Counseling : 28.0%
Dickson 2013	Swiss, Switzerland	Experimental group: Hypnosis intervention (self-efficacy approach) Control Group : relaxaxion (music)		follow up 2 weeks, 26 weeks and 52 weeks	findings, group hypnosis was not more effective for smoking cessation than group relaxation prevalence of quit smoking : (2 weeks) hypnosis : 33.0% relaxaxion : 24.0%
Killen et.al (2008)	California, America	Sample : 180 men 121 women CBT plus voicemail monitoring and telephone counseling	CBT 8 sessions combine and nicotine patch therapy combined with 9 weeks of bupropion	Follow up at 20 weeks	CBT produced a higher 7-day point prevalence abstinence rate: 45.0% versus 29.0%, $P = 0.006$; at 52 weeks the difference in abstinence rates (31.0% versus 27.0%) was not significant.

Laude (2017)	America	Sample : 219 smokers Patients were randomized to receive non-extended CBT (n = 111) or extended CBT (n = 112)	CBT 10 sessions combine and nicotine patch therapy combined with 9 weeks of bupropion (extended therapy)	Follow up 52 weeks and 104 weeks	Prevalence of quit : CBT : 39.0% E-CBT : 33.0% (104 weeks)
Stead, 2017		Sample : 66 participants Randomized trials that compared group therapy and self-help individual counselling,	**Group Behaviour Therapy Programmes for smoking cessation**		Group therapy is better for helping people stop smoking than self-help,
Daniel et.al (2015)	Indiana America	Sample : 1785 Standard quitline, 2 standard plus technology enhanced quitline with 10 risk assessments Tehnology Enhanced Quitline (TEQ-10), 3. standard plus 20 TEQ assessments (TEQ-20).	Telephone counselling 6 sessions	Follow up :	Standart treatment prevalence 61.0% (12months) TEQ : 38.0%
Lei Wu et al,. 2016	China	Face-to-face Individual Counselling Group (FC), and Face-to-face individual Counselling plus telephone follow-up counselling group (FCF group)		Follow up 1 week, three and six months	The majority of the lapse episodes occurred during the first 2 weeks after the quit date. Further research is required to identify effective methods to help individuals with high risk of smoking relapse
Segan et. al 2011	Victo ia, Australia	Telephone counselling Topics included (i) encouraging lifestyle changes to replace any real benefits of	Session 4-6 calls Clients had quit for 7 days	Follow up 4 and 12 months	Prevalence rate 32.0%

		smoking, (ii) experience with high-risk situations and planning to confront new situations, (iii) motivation, focussing on warning signs and cessation fatigue, (iv) coping with emotional issues			
Cheung et.al	Hongkong	WhatsApp or Facebook social group WhatsApp (WA) (n=42), Facebook (n=40), and a control group (n=54)		Follow up two and six months	Prevalence quit smoking at 2 months WA: 40.0% participants quit smoking Face book: 30.0% participants quit smoking
Chandradewi et al,. 2012	Indonesia	Sample : 75 participants Divided 3 group : counselling brief 5A's group, sms group dan control group	Text : 1 times per day for 2 months	Follow up 2 months	Percentage ogf quit smoking 20.0% (5A and text)
Kusumawati et,.al 2019	Indonesia	Group counseling in an effort to shape student smoking cessation behavior Sample: 30 participants	Sharing session by educator	No follow up	The results show that there is a decrease in cigarette consumption by 1.4SD
Hodper 2020	Africa	Experimental group : Efficacy CBT include : Coping skill training, relapse prevention strategies Control Group : general health education (advice)	There were 6 sessions	Follow up 3 and 6	Result for 3 month CBT : 34.0% Control group 20% Follow up for 6 months CBT : 31% Control group : 14% Future reseach : CBT emphasizes cognitive, affective, emotional behavior skill factor example : affect management and coping strategies

From the previous literature, the effectiveness of the behavioral approach and psychological treatment can be described as follows:

Figure 1. Rate of Successful Psychological Approach to Stop Smoking



From the diagram, it can be concluded that the success rate of relapse prevention is about 20%-45%. The lowest effective is The Brief Method, followed by relaxation method, text message method, CBT combine relaxation, hypnosis method and the most effective is multiple therapy (combine more than one CBT therapy and telephone counselling). Some of the psychology therapies are combined with pharmacological approaches.

Positive psychotherapy is more effective than other behavioral therapies such as CBT, hypnosis, counseling, text messages and relaxation. And the combination of two behavioral treatments in one intervention will produce higher effectiveness, such as CBT plus telephone counselling. This is in line with previous research which proved that the combination of more than one intervention in an intervention showed a high percentage to stop smoking (Flavia, 2014).

a. Positive psychotherapy

   Kahler is a researcher who has researched PPT for smoking cessation in 2014. Kahler succeeded in proving his research that 31.6% of participants sustained smoking abstinence for six months after their quit date. The researcher suggests conducting an initial investigation of Positive Psychotherapy for Smoking (PPT-S) used six sessions compared to a standard smoking treatment that does not contain mood management components. The PPT-S treatment was adopted from Seligman and modified by Kahler. PPT-S consists of 1) signature strength, 2) three good things, 3) savoring, 4) active/constructive, 5) savoring acts of kindness and 6) maintenance (Kahler et al., 2014). The advantages of positive psychotherapy for smoking cessation are counseling sessions from one to four/eight sessions significantly increasing long-term abstinence rates, but abstinence rates appear to plateau at 6 to 7 sessions ((Kahler et al., 2014). In Indonesia , there have been several studies on the PPT approach to address psychological problems such as reducing anxiety and negative affect. Still, no PPT study has been found for smoking prevention or smoking cessation programs

b. Cognitive Behavior Therapy

Cognitive-behavioral strategies have two tasks:

1) Cope with craving and common high risk situations without relapse.
2) The second task, which comes to dominate around the time daily cravings subside, is embracing a smoke-free lifestyle. The aim of this second task is for ex-smokers to minimize, and ideally eliminate, any perceived losses associated with quitting so that they find they are enjoying life more and coping better than when they were smoking and cannot think of any important situation where they would be better off reaching for a cigarette.

The elements include: (i) recognition (through reflection on post-quitting experiences) that many perceived benefits of smoking were illusory, (ii) finding alternative coping behaviors where smoking produces real benefits and instituting these as lifestyle changes, (iii) facing old smoking situations to extinguish the urge to smoke and (iv) adopting a non- or ex-smoker image by rejecting or growing out of a smoker self-image. CBT combined with a smoking cessation medication (such as the nicotine patch or/and nicotine gum) is quite effective for smokers who are motivated to stop. Thus, it is recommended to do CBT for 20 weeks by developing activities in the cognitive and behavioral phases to maintain non-smoking. It can help smokers to keep their abstinence longer (Killen et al., 2008).

c. 5A model (The Brief therapy).

There are two types of the brief namely 5As Model and 5Rs Model (Organization, 2014);(ENSP, 2017). The 5As model is a treatment that has been proven to be able to increase smoking cessation. The 5As program includes ask, advise, assess, assist and arrange. Firstly, smokers who want to quit will be asked about their smoking status, then smokers get advice to quit smoking, evaluate the smoker's readiness to quit smoking, assist the patient during the quit attempt and finally follow up the program. In contrast, 5Rs is one treatment strategy focused on personally relevant reasons to quit, risk related to identifying potential personalized health risks of the smokers, rewards for quitting, barriers that might impede the success of a quit and repetition of the intervention/treatment till enough to quit smoking. The 5Rs Model consists of relevance, risks, rewards, roadblocks, and repetition and the aim of 5Rs is to build motivation towards smoking cessations. (ENSP, 2017)

The affect of brief advice is lower than psychotherapy and pharmacological therapy (Stead et al., 2012). The one out of 40 smokers who were given advice for three to five minutes showed the results could give the effect of quitting smoking even though it has a very low impact (ENSP, 2017). Ulaps (2019) in his research proved that there was a success for the 5As approach to stop smoking even though it was only around 20.0%.

d. Telephone Counseling

Research conducted using the telephone counseling approach shows effective results in stopping smoking by 22.0%. In comparison, the extended telephone counseling program can have a smoking cessation effect of 58.9% at four months of follow-up and decreases to 27.0% at 12 months of follow-up (Segan & Borland, 2011). In contrast to these results, Jyang's (2016) research showed that the majority of respondents lapses occurred during the first two weeks after the quit date through a standard telephone counseling program. In Vietnam, from 469 smokers who got quit line services, only 31.6% managed to quit smoking. While relapse due to environmental factors and craving symptoms (Chau et al., 2016).

e. Hypnosis therapy

Previous research conducted hypnosis of two meetings in 60 minutes for each of face-to-face sessions and four meetings in 20 minutes for each of follow-up phone calls. The results showed at 26 weeks prevalence stop rate of 35.0% and the percentage decrease at 52 weeks to 29.0%. (Timothy, Carmody, Carol, Duncan & Solkowitz, 2008). Hypnosis therapy has little effect on smoking cessation because:

1. Effective for only six months than other therapies or no therapy.
2. There are other factors that cause smokers to quit smoking, such as trust in a therapist.
3. Does not describe long-term results.

The same result showed the efficacy of a single session of group hypnosis for smoking cessation, containing a psycho-educational part and relaxation, At the two-week follow-up 33.3% reported smoking abstinence and follow-up at the 6-month only 14.7 % in the hypnosis group were consistent to quit smoking (Dickson et al., 2013).

f. Text Messages

Text message interventions are capable of producing positive change in preventive health behaviors. The benefit of messages as health promotion is that they can increase the health efforts of a person or group, so providing information through social media can increase individual knowledge and understanding of the dangers of smoking. Smoking cessation research programs that are only in the form of text messages are generally in the way of applications such as Happy Quit, NEXTit, and Stop My Smoking. The contents of words based on the concept of cognitive behavior theory in the form of motivational sentences in reducing smoking and psychoeducation about the dangers of smoking and showing effective results for stopping smoking (Ybarra, 2013; (Liao et al., 2016)

4. CONCLUSION

It can be concluded that the success rate of relapse prevention is about 20%-45%. The lowest effective is The Brief Method, followed by relaxation method, text message method, CBT combine relaxation, hypnosis method and the most effective is multiple therapy (combine more than one CBT therapy and telephone counselling). Some of the psychology therapies are combined with pharmacological approaches.

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