

Meta-Analysis: Hypnotherapy and Its Effect on Quitting Smoking Behavior

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ABSTRACT

Background: Smoking is still a major health problem, about 23% of the world's population smokes. Indonesia is in the 3rd rank with the number of active smokers worldwide and more than 97 million Indonesians are exposed to cigarette smoke. Hypnotherapy can play a role in controlling smoking habits with a psychological health approach that is used to change human behavior and habits. The purpose of this study was to analyze the effect of hypnotherapy on the success of smoking cessation in active smokers based on the results of previous similar studies.

Subjects and Method: This study was a meta-analysis with the following PICO, Population: active adult smokers. Intervention: hypnotherapy. Comparison: no hypnotherapy. Result: decreased pain. The articles used in this study were obtained from three databases, namely Google Scholar, Pubmed, and Science Direct. The keywords to search for articles are “hypnotherapy” OR “hypnosis” AND tobacco OR smoke OR smoked OR smoker AND “smoking cessation”. The articles included are English and Indonesian full text with a randomized control trial study design from 2008-2022. Article selection is done by using PRISMA flow diagram. Articles were analyzed using the Review Manager 5.3 application.

Results: A total of 9 Randomized Controlled Trial studies from the continents of Europe, America, Asia and Africa were selected for systematic review and meta-analysis. It was found that hypnotherapy can increase the success of smoking cessation and is statistically significant (SMD= 1.32; CI 95% = 0.53 to 2.12; p=0.001).

Conclusion: Hypnotherapy increases the success of smoking cessation in active adult smokers.

Keywords: hypnotherapy, hypnosis, tobacco, smoker, smoking cessation.

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BACKGROUND

Currently, smoking behavior has become a global health problem that is difficult to solve. Smoking behavior is one of the phenomena in today's youth that is widespread and increasing from year to year in all circles, both men and women. Worldwide, about 23% of the world's

population smokes, 32% of smokers are male and 7% are female (Adam et al, 2020).

Indonesia is in the 3rd rank in the world with the number of active smokers and it is predicted that more than 97 million Indonesians are exposed to cigarette smoke (Ministry of Health, 2019). The increase in smoking prevalence was seen greater in the group of children and adoles-

cents with 18.8% of students aged 13-15 years being active smokers, while 57.8% of students aged 13-15 years were passive smokers (Coordinating Ministry for Human Development and Culture Republic of Indonesia, 2021). Basic Health Research (2018) showed that there was an increase in the prevalence of smoking aged 18 years from 7.2% to 9.1%. This figure is still very far from the 2019 RPJMN target of 5.4%.

Smoking behavior has become a lifestyle, especially for active smokers. Although, this smoking behavior has the potential to always threaten their lives. The threat of death not only stalks those who are active smokers but also stalks those who are around active smokers or who are known as passive smokers. Every year, tobacco causes 8 million deaths in the world (WHO, 2021). More than 7 million deaths are caused by direct use of tobacco and about 1.2 million are caused by exposure to secondhand smoke. In addition, smoking is known to be a risk factor for various respiratory infections and increases the severity of respiratory diseases (WHO, 2020). In 2015 Indonesia accounted for more than 130,000 deaths due to tobacco consumption each year (Ministry of Health, 2019).

Smoking behavior can have an impact on health, including: cancer, inhibiting the supply of oxygen throughout the body, coughing and bronchitis (Suhaida, 2016). In addition to having an impact on health, smoking behavior also has an impact on a person's social functioning which can reduce a person's ability to fulfill basic needs. According to Hamado (2014) a person's smoking behavior will have an impact on the role that individuals play when they are in public places, because a person's smoking habit can harm the people around him and be considered disrespectful to others. Smoking behavior can

also cause dependence, anxiety and anxiety based on psychological aspects (Wibowo, 2016).

The adverse effects that occur due to smoking behavior are caused by various substances contained in cigarettes such as nicotine, tar, formaldehyde, cyanide, carbon monoxide, benzene, methanol, arsenic, and many other substances in it (Junianto, 2014).

There are many methods that can be used to control smoking habits. The methods that are widely used along with the times are complementary methods. One of the complementary methods that is easily accepted by the community is the hypnotherapy method. The hypnotherapy method is the use of hypnosis or any hypnotic technique to increase motivation or change, promote personal or spiritual growth and release the client from the problem or cause of the problem. Hypnotherapy is a psychological health approach that is used to change human behavior and habits (Purwanto, 2021).

This study aims to conduct a meta-analysis study to estimate the magnitude of the effect of hypnotherapy on the success of smoking cessation in active smokers based on the results of previous similar studies.

SUBJECTS AND METHOD

1. Study Design

This study is a systematic and meta-analysis study. The articles used in this study were obtained from several databases, namely Google Scholar, Pubmed, and Science Direct between 2008 and 2021. The selection of articles was carried out using the PRISMA flow chart. The keywords to search for articles are as follows: "hypnotherapy" OR "hypnosis" AND tobacco OR smoke OR smoked OR smoker AND "smoking cessation".

2. Inclusion Criteria

The inclusion criteria in this study article were: full-text article with a randomized control trial design, study subjects were active adult smokers, study results were smoking cessation, multivariate analysis with Standardized mean difference (Mean – SD) to measure the predicted effect.

3. Exclusion Criteria

The exclusion criteria in this study article were: articles published in languages other than English and Indonesian, statistical results reported in the form of bivariate analysis, articles before 2008.

4. Operational Definition of Variables

The article search was carried out by considering the eligibility criteria determined using the PICO model. Population: adult active smokers. Intervention: hypnotherapy. Comparison: no hypnotherapy. Result: quit smoking.

Hypnotherapy is a method to change smoking behavior through suggestion.

Success in Quitting Smoking is the success of quitting smoking after active smokers do hypnotherapy.

5. Instruments

This study was guided by the PRISMA flow chart and quality assessment using Critical Appraisal. In table 2, the researchers conducted an assessment of the quality of the study using critical appraisal tools randomized controlled trial (RCT) published by CEBM University Of Oxford in 2014:

1. Does the study address clearly focused statements/problems?
2. Is the Randomized Controlled Trial study method appropriate to answer the study question?
3. Are there enough subjects in the study to establish that the findings did not occur by chance?
4. Are the subjects randomly allocated to the experimental and control groups? If not, could this be biased?

5. Are inclusion/exclusion criteria used?

6. Are the two groups comparable at the start of the study?

7. Are objective and unbiased outcome criteria used?

8. Are objective and validated measurement methods used in measuring the results? If not, were results assessed by someone who was not aware of the group assignment (it was the assessment blinded)?

9. Is the effect size practically relevant?

10. How precise is the estimate of the effect? Is there a confidence interval?

11. Could there be confounding factors that have not been taken into account?

12. Can the results be applied to your study?

6. Data Analysis

The data in the study were analyzed using the Review Manager application (RevMan 5.3). Forest plots and funnel plots were used to measure the relationship and heterogeneity of the data. The fixed effects model is used for homogeneous data, while the random effects model is used for heterogeneous data across studies.

RESULTS

Process of searching article was carried out by searching several journal databases Google Scholar, PubMed, and ScienceDirect it can be seen using the PRISMA FLOW flowchart shown in Figure 1.

The initial search for articles sourced from various databases obtained initial results of 1,012 articles, after filtered again by checking for duplicates, suitability of the title and abstract and the last is checking the full text, obtained 9 articles from that meet the inclusion and exclusion criteria that have been set previously (Figure 1).

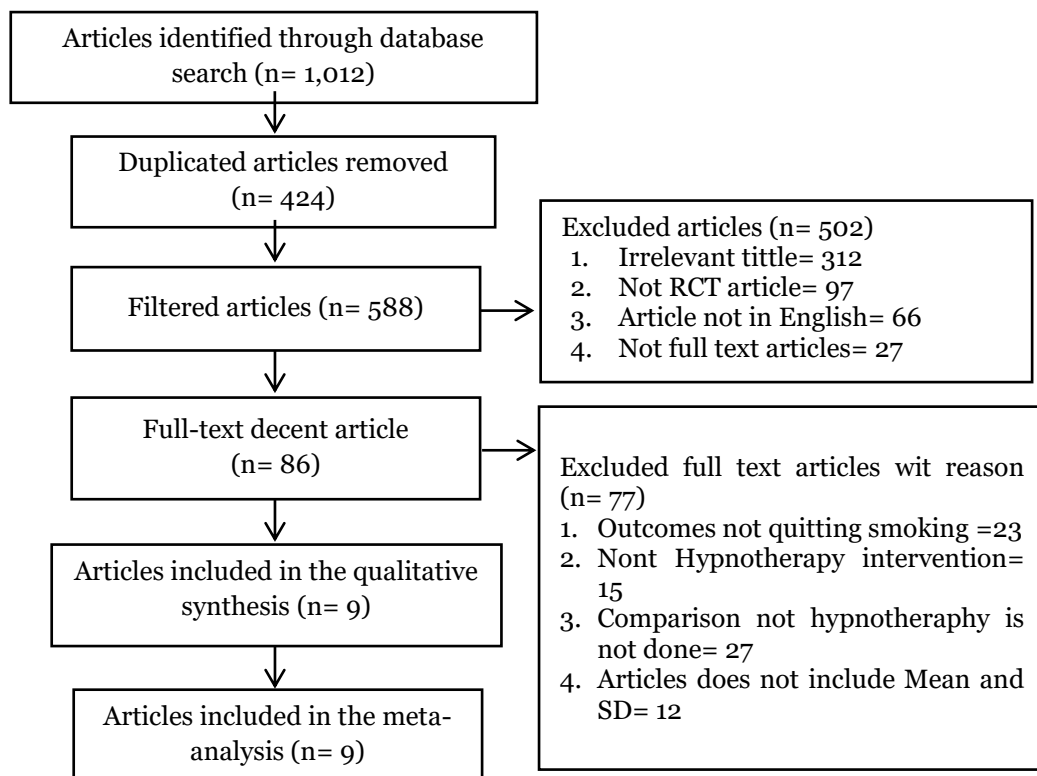


Figure 1. Results of Prisma Flow Diagrams

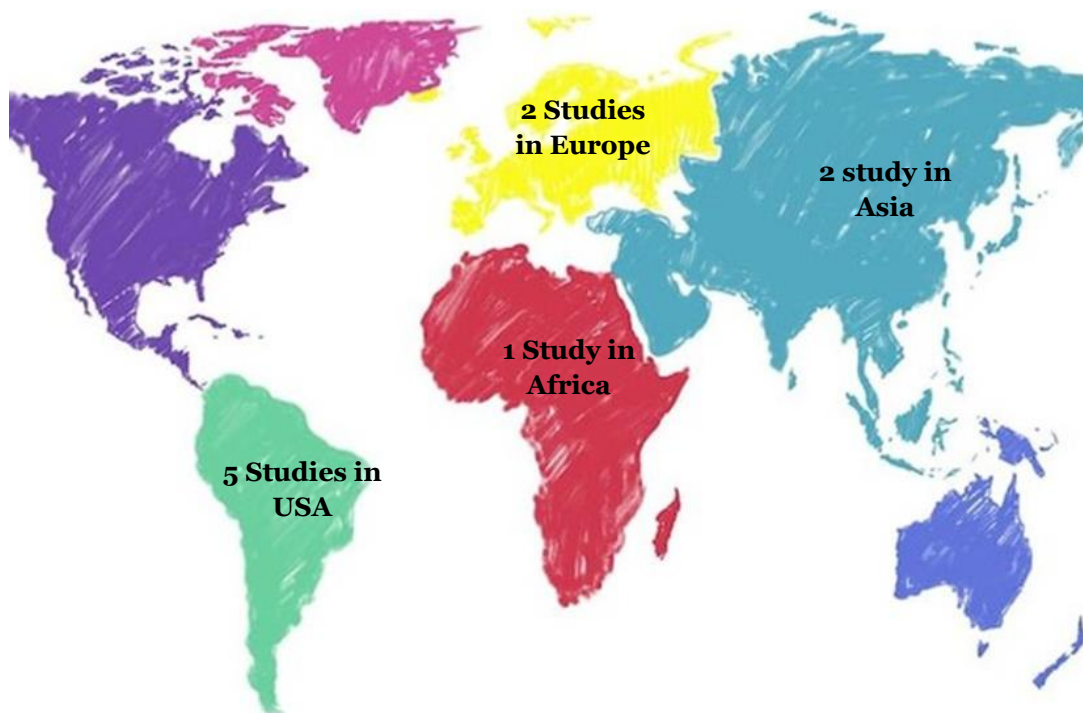


Figure 2. Research Distribution Map

Table 1. Results of Quality Assessment of Randomized Control Trial Study Effect of hypnotherapy on smoking cessation behavior.

Primary Study	Criteria												Total
	1	2	3	4	5	6	7	8	9	10	11	12	
Carmody et al. (2008)	2	2	2	2	2	2	2	2	2	2	2	2	24
Carmody et al. (2017)	2	2	2	2	2	2	2	2	2	2	2	2	24
Hasan et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	24
Munson et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	24
Bolinger et al. (2018)	2	2	2	2	2	2	2	2	2	2	2	2	24
Riegel et al. (2013)	2	2	2	2	2	2	2	2	2	2	2	2	24
Spillmann et al. (2013)	2	2	2	2	2	2	2	2	2	2	2	2	24
Margiyanti et al. (2022)	2	2	2	2	2	2	2	2	2	2	2	2	24
Mohamed et al. (2014)	2	2	2	2	2	2	2	2	2	2	2	2	24

Note: Answer: Yes=1, No =0.

Figure 1 Research related to hypnotherapy and its effect on quitting smoking Behavior consisted of 9 articles come from four continents such as Asia, Africa, USA, and Europe.

An assessment of the quality of the articles used in this study can be seen in table 1. Then Table 2 shows that 9 articles from a randomized controlled trial study provide evidence about hypnotherapy and its effect on quitting smoking, also in table 2 it can be seen about the details of the articles used in this study, such as the study population, intervention, comparison, and the results of each study. All articles used in this study are articles with a randomized controlled trial study design.

Based on the results of the forest plot (figure 3) of the randomized controlled trial

study design, showed that hypnotherapy could increase the success of smoking cessation and it was statistically significant (SMD= 1.32; 95% CI= 0.53 to 2.12; p< 0.001). in this meta-analysis, there was very high heterogeneity in the estimation of the effect of hypnotherapy between studies with I²=97%. Thus, incorporating the estimated effect of all studies in this meta-analysis using the random effects model.

In figure 4 it can be seen about the funnel plot, it showed a funnel plot where the distribution of the estimated effects from the study which is not symmetrical is mostly located on the left side of the estimated average effect value. So, the funnel plot indicates that there is a publication bias that reduces the actual effect (under estimate).

Table 2. Description of Primary Research included in the Meta-Analysis

No	Author (Year)	Country	Study Design	Sample	Population (P)	Intervention (I)	Comparison (C)	Outcome (O)	Mean		SD	
									IC	CG	IC	CG
1	Carmody <i>et al.</i> (2008)	San Francisco	RCT	246	Adult smokers aged ≥17 years	Hypnotherapy	No treatment	Quit smoking	14.7	13.4	8.7	8.4
2	Carmody <i>et al.</i> (2017)	San Francisco	RCT	102	Adult smokers aged ≥17 years old	Hypnotherapy	No treatment	Quit smoking with low relapse rate	9.4	9.4	7.6	7.5
3	Hasan <i>et al.</i> (2014)	USA	RCT	80	Active smokers aged 18-75 years old	Hypnotherapy	No treatment	Quit smoking	4.5	4.1	5.4	3.4
4	Munson <i>et al.</i> (2018)	USA	RCT	30	Active smokers.	Hypnotherapy	No treatment	Quit smoking	11.72	7.56	7.35	4.09
5	Bolinger <i>et al.</i> (2018)	USA	RCT	33	Active smokers aged 18-65 years old	Hypnotherapy	No treatment	Quit smoking	7.56	5.09	1.58	2.3
6	Riegel <i>et al.</i> (2013)	German	RCT	85	Active smokers aged 23-68 years old	Hypnotherapy	No treatment	Quit smoking	45.4	35.3	11.9	7.6
7	Spillmann <i>et al.</i> (2015)	Switzerland	RCT	223	Active smokers aged 17-78 years old	Hypnotherapy	No treatment	Quit smoking	4.31	4.22	0.67	0.8

No	Author (Year)	Country	Study Design	Sample	Population (P)	Intervention (I)	Comparison (C)	Outcome (O)	Mean		SD	
									IC	CG	IC	CG
8	Margiyanti <i>et al.</i> (2022)	Indonesia	RCT	40	Male student active smokers aged 20-40 years old	Hypnotherapy	No treatment	Quit smoking	1.25	1.2	0.4	1.35
9	Mohamed <i>et al.</i> (2014)	Egypt	RCT	127	Male student active smokers aged 18-20 years	Hypnotherapy	No treatment	Quit smoking	82.96	25.08	6.26	5.3

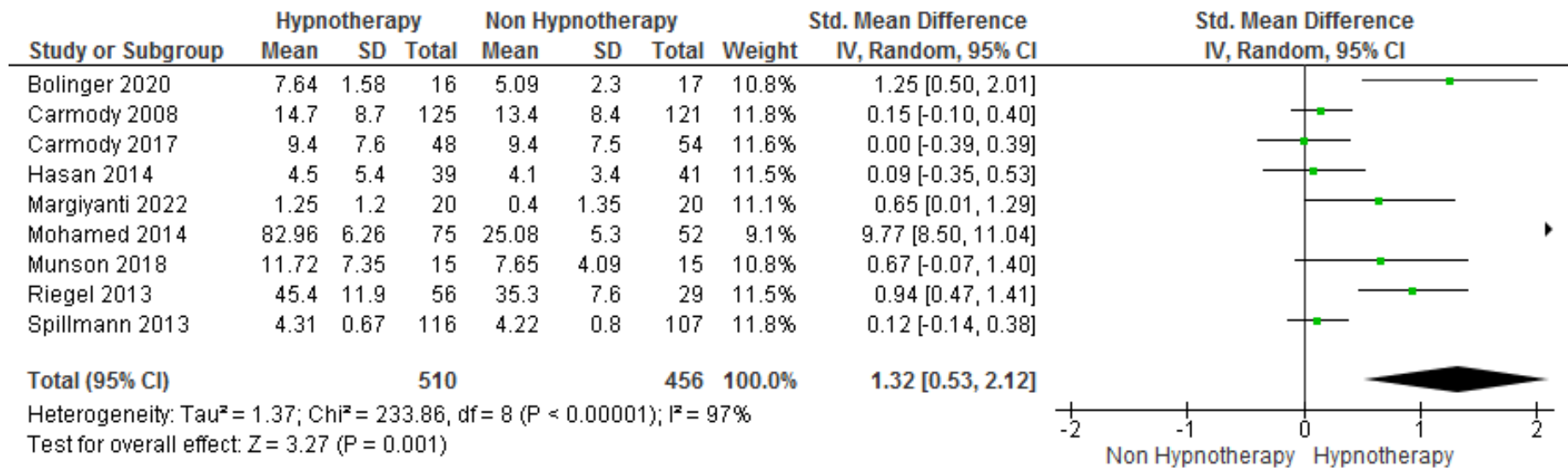


Figure 3. Forest Plot of the Effect of Hypnotherapy on Smoking Cessation Behavior

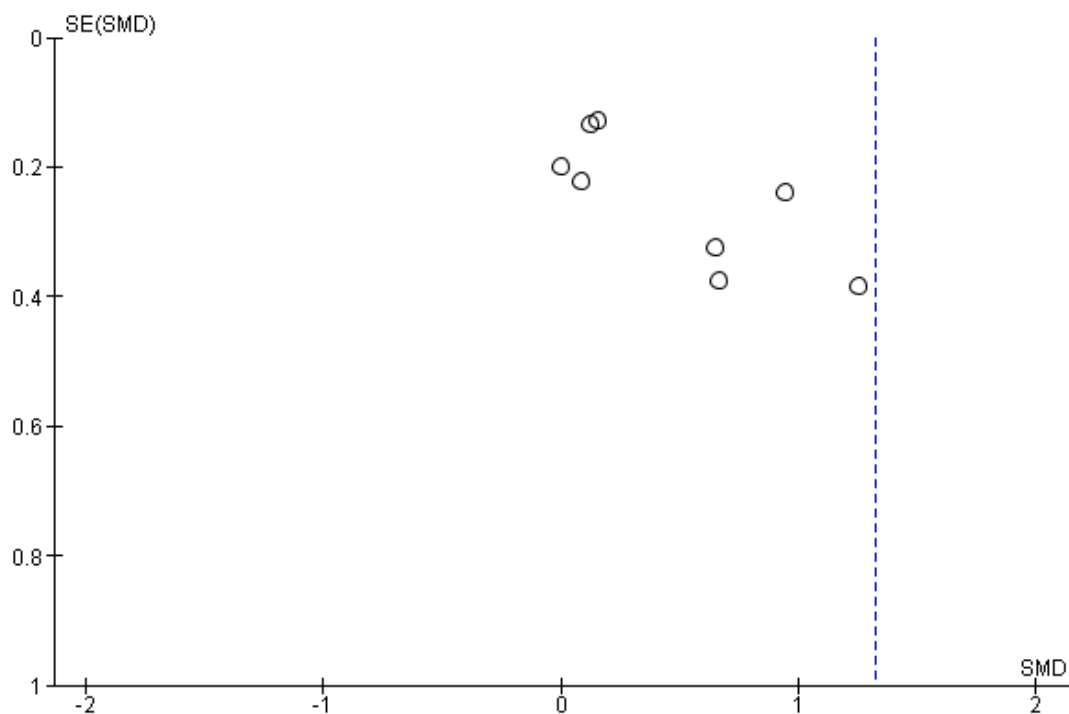


Figure 4. Funnel plot of the Effect of Hypnotherapy on Smoking Cessation Behavior.

DISCUSSION

This research is a systematic review and meta-analysis on the theme of the effect of hypnotherapy on smoking cessation behavior. The independent variable analyzed was hypnotherapy. Study that discusses therapy for successful smoking cessation is considered important because the level of mortality and morbidity caused by cigarette consumption in Indonesia and the world is still quite high (WHO, 2018).

Confounding factors affecting the relationship or effect of exposure to the occurrence of the disease by the study are not the same as the relationship or effect that actually occurs in the target population in other words the study results are not true or valid (Murti, 2018).

Estimates of the effect of hypnotherapy on the success of smoking cessation were processed using the RevMan 5.3 application with the continuous method. This method was used to analyze the effect

size or standardized mean difference in bivariate data of two groups that had been controlled for confounding factors by randomization.

The results of the systematic study and meta-analysis are presented in the form of forest plots and funnel plots. The forest plot shows an overview of the information from each of the studies examined in the meta-analysis and estimates the overall results (Murti, 2018). The forest plot shows visually the number of variation (heterogeneity) between study results (Akobeng in Murti, 2018).

A funnel plot is a diagram in a meta-analysis used to show possible publication bias. The funnel plot shows the relationship between the size of the study effect and the sample size of the effect size of the various studies studied which can be measured in different ways (Murti, 2018).

Systematic review and meta-analysis in this study was carried out with the aim of

increasing the generalizability of the findings and obtaining convincing conclusions from the results of various similar studies regarding the effect of hypnotherapy on smoking cessation behavior.

There are 9 experimental studies randomized controlled trial studies as a source of meta-analysis of the effect of hypnotherapy on smoking cessation behavior, showing that hypnotherapy is significant in increasing the success of smoking cessation. The results of the Forest Plot show the magnitude of the effect of hypnotherapy on the success of smoking cessation, which is 1.32 units higher increasing the success of smoking. (SMD= 1.32; 95% CI 0.53 to 2.12 $p= 0.001$). The heterogeneity of the research data showed $I^2= 97%$ so that the distribution of the data was declared heterogeneous (random effect model).

This meta-analysis is in line with research conducted by Hunter (2015) which states that hypnotherapy with part therapy can reduce smoking behavior. The stages referred to in this study consist of 11 stages that become a single unit that can facilitate changes in smoking behavior. The part therapy approach refers to a client centered approach which is a client centered approach. In hypnotherapy with part therapy, a facilitator can only tell what to do through hypnotic suggestions, while the decision power rests with the client.

Another similar study was also conducted by Giyati (2019) which stated that hypnotherapy had an effect on reducing smoking behavior. Smoking behavior before hypnotherapy was higher than after hypnotherapy. Research conducted by Giyanti explained that the smoking behavior of research subjects before hypnotherapy was included in the severe category, after the first and second hypnotherapy had decreased, namely the mode-

rate category, in the 3rd hypnotherapy, it decreased back into the mild category, even until stop smoking within the last 3 days of measurement after the 3rd hypnotherapy.

According to Purwanto (2021), there are seven stages of hypnotherapy, namely pre-induction, induction, deepening, depth level test, suggestion therapy, hypnotherapeutic technique and termination. The process of implementing hypnotherapy for smoking cessation has no difference with the implementation of hypnotherapy for other outcomes, such as postoperative pain reduction, etc.

The implementation of hypnotherapy focuses on affirmations given to clients so that their subconscious mind is able to encourage behavior change. Since the beginning of the implementation, namely from the pre-induction process to termination, the therapist continuously provides "quit smoking" affirmations to clients. This method is done so that the client continues to remember these affirmations continuously. In addition, after the completion of each session, the client is asked to continue repeating the affirmations in a conscious state. Therefore, the client can make this affirmation a habit so that eventually it can reduce its intensity in smoking, until completely quitting smoking.

AUTHOR CONTRIBUTION

Jihan Nafisah Fauziyyah is the main researcher who selected the topic, explored and collected the data. Hanung Prasetya and Bhisma Murti played a role in analyzing data and reviewing study documents.

FUNDING AND SPONSORSHIP

This study is self-funded.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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