Conference Paper

Smoking Cessation Counseling Program: A Pilot Study on College Smokers

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Abstract

Smoking is one of the major problems of public health in Indonesia, but the effort from the government, especially in the light of health-related aspect, for smoking cessation program is still lacking. Pharmacists have a role in facilitating smoking cessation intervention through counseling and pharmacotherapy. The purpose of this prospective study was to determine whether counseling can reduce the number of the cigarette smoked and nicotine dependence (based on Fagerström Test for Nicotine Dependence (FTND) score), also improve the quality of life (based on Smoking Cessation Quality of Life (SCQOL)) on college smokers. There were 12 pharmacy students trained as counselors using Rx for Change training module. After the training, there were significant increases in counseling skills and confidence aspects ($p<0.01$), but not in the perceived-role. From 188 respondents who are a current cigarette smoker, 17 agreed to participate and finished all four counseling sessions (30 days point-prevalence). By the end of the program, 3 (17.65%) had abstinence, 11 (64.70%) reduced their smoking consumption per day by $\geq$ 50%, while three others (17.65%) relapsed. Counseling had a positive impact on reducing nicotine dependence based on FTND score improvement ($p<0.01$), but not on the quality of life. Counseling as a method to reduce smoking is considered effective and applicable to be adapted by pharmacy students and pharmacists. For long-term cessation and its impact, participants' progress should be followed-up at longer point-prevalence and verified biochemically to prevent bias.

Keywords: counseling, pharmacy students, smoking cessation, nicotine dependence, quality of life

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1. Introduction

Smoking is one of the main problems of public health in Indonesia. It becomes a risk factor for various chronic diseases, thus potentially harm both active and passive smoker's health. According to research by Indonesian Ministry of Health (Riskesdas), smoking behavior increased among people aged 15 and above from 34.2% in 2007 to 36.3% in 2013; the proportion of 69.4% male and 2.1% female were still actively smoking. The popular age to start smoking increased at the age of 10-14 years old and peaked at the age of 15-19 years old [1].

Even though smoking prevalence in Indonesia is the highest compared to the other ASEAN countries [2], the effort from the government, especially in the light of health-related aspect, for smoking cessation program is still lacking. According to WHO, until late 2014, smoking cessation programs provided by primary care facilities and hospitals were still very limited. First-line pharmacotherapy to help quit smoking, such as Nicotine Replacement Therapy (NRT) and Varenicline, were available in community pharmacy, but not commonly available and not included in the list of national essential medicine (DOEN). Besides, the government has not set the regulation of electronic cigarette (e-cigarette) use, which is rising in popularity lately [3].

Based on WHO's 2015 Global Health Youth Survey, most of the teenage population, both male and female, had tried to quit smoking within the past 12 months (80.18%), had desire to quit smoking at the moment (88.2%), and admitted being able to quit smoking if they want to (91.8%). However, only a limited number of them had received any help from a smoking cessation program or professional health providers (24%) [1, 4]

Pharmacists have a role in facilitating smoking cessation intervention through counseling and pharmacotherapy. Their involvement supported by various international organizations, including the National Health Service (NHS), the International Pharmaceutical Federation (FIP), and American Society of Health-System Pharmacy (ASHP). It is also highlighted in the World Health Organization (WHO) Framework Convention on Tobacco Control (FCTC) [5]. According to Clinical Practice Guideline for Treating Tobacco Use and Dependence [6], the success level of cessation on smokers who quit through brief counseling is higher (13.41%) than without counseling (10.9%), and the number increases as the counseling sessions take longer. Face-to-face counseling for 4-8 sessions considered effective because it can increase the cessation rate (20.9%). The counseling method follows 5A: Ask, Assess, Advice, Assist, and Arrange [5, 6].

In this study, a counseling program conducted by pharmacy students held within a month for college smokers. The aim of this study is to determine whether counseling affects smoking status (based on ≥50% decrease of cigarettes), reduces nicotine dependence (based on Fagerström Test for Nicotine Dependence (FTND)), and improves quality of life (based on Smoking Cessation Quality of Life (SCQOL)).

2. Methods

The study is a prospective trial on smoking cessation counseling program intended for college smokers to assess its effect on smoking status, nicotine dependence, and quality of life.

2.1. Subjects

Counselors were final year pharmacy students in Bandung Institute of Technology (ITB), considering their enough knowledge in Pharmacology and Clinical Pharmacy. Counseling participants openly recruited among college smokers. The inclusion criteria were:

aged 17 and above, studied in ITB or living in Bandung area during the program, had the desire to quit smoking within the next 30 days, smoking one cigarette or more every day, and willing to participate in the counseling sessions as scheduled. The recruitment was done through a survey which consists of (a) assessment of nicotine dependence (using Fagerström Test for Nicotine Dependence (FTND) questionnaire [7]; $\alpha = 0.839$), (b) assessment of e-cigarette dependence (using Penn State (PS) E-Cigarette Dependence Index [8]; $\alpha = 0.749$) and (c) perspective on smoking cessation counseling and whether they are interested in participating. Respondents who fulfilled the criteria and were involved in taking part were then contacted and explained the program using informed consent.

2.2. Training for counselors

The training based on Rx for Change program, an educational smoking cessation module for pharmacy and other health-related students, developed by the University of California [9]. The training was divided into lecture session and role-play. Materials given included (1) epidemiology and health consequences of smoking, (2) pharmacology and principle of nicotine dependence, (3) pharmacotherapy for smoking cessation, and (4) 5A smoking cessation counseling method: Ask, Advise, Assess, Assist, and Arrange. Role-play was designed to help students in applying their communication skills using scenario. The training was evaluated using pre- and post-survey [10].

2.3. Counseling program

The program was designed to be divided into four sessions: the first session for assessing baseline, and the next three sessions for follow-up at three different point prevalence (1, 7, and 30 days after quit date). Quit date defined as the day the smokers either (1) stop smoking altogether, or (2) reducing the number of cigarettes per day by $\geq$ 50%. Participants given a quit kit to help them quit and relieve craving, which consists of information booklet, chewing gum, drinking bottle, and teeth brush. Each session takes around 10-15 minutes, except for the first session which takes longer because of the baseline assessment.

Baseline assessment was done through personal interview and filling questionnaire. Participants asked regarding their smoking history, readiness to reduce or quit, identification of any possible obstacles if they quit, and current status for the quality of life (using Smoking Cessation Quality of Life (SCQOL) questionnaire [11]; $\alpha = 0.675$) (see Figure 1).

The follow-up sessions were intended for the counselor to help participants set strategy to overcome any craving or withdrawal symptoms. The participants were reassessed at the last session through self-report regarding smoking status, an improvement on nicotine dependence (using FTND questionnaire), quality of life (using SCQOL questionnaire), and overall feedback about the program.

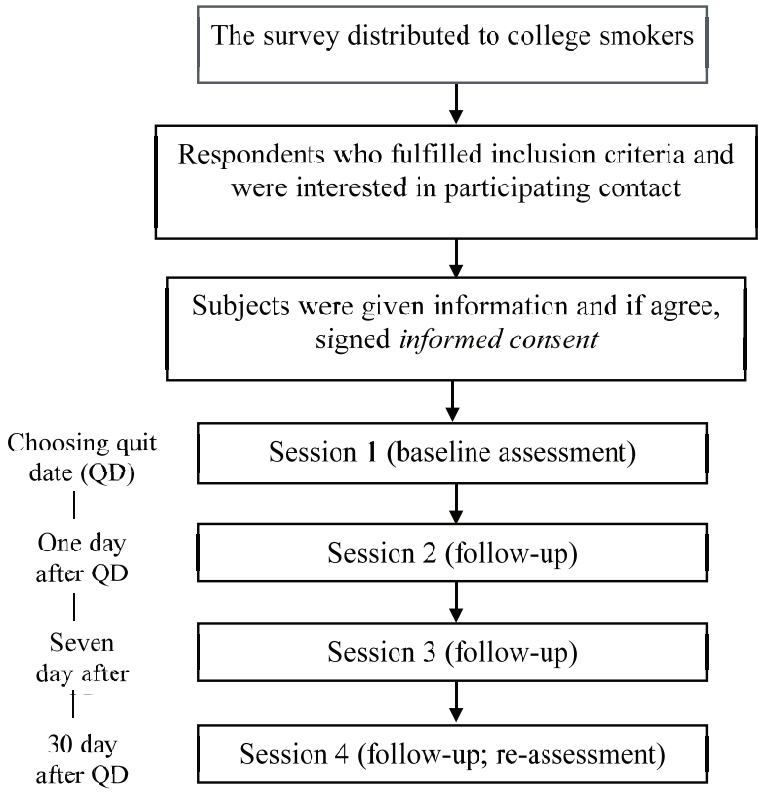

Figure 1: Subjects flowchart throughout the study.

2.4. Data analysis

All questionnaires validated by using WHO guideline [12]. Demographics and other smoking-related variables summarized by using means with standard deviations. Nicotine dependence and quality of life scores compared by using a paired t-test or the Wilcoxon signed-rank test for non-normally distributed data (CI = 99%).

3. Results

Smoking cessation counseling training conducted for 12 pharmacy students. To evaluate whether the training successfully prepared them to be conducted, results from pre-and-post-survey were compared (table 1).

TABLE 1: Evaluation Result from Smoking Cessation Counseling Training (n=12).

Parameter	Score range	Mean		p-value
		Pre-	Post-	
Counseling skill	7-35	8.83	19.83	0.000 (<0.01)
Confidence	0-150	36.67	70.92	
Perceived-role	6-31	25.25	25.42	0.809

Demographics of all respondents (n=188) and those who were willing to become participants (n=23) (Table 2). Out of 188 respondents, 87.1% were male, and 13.83% were

female, with average age 21.08 years old. Forty-seven respondents admitted using an e-cigarette, which was a small number compared to those who use conventional cigarette.

Table 2: Smokers Demographics.

Characteristic	Total (%)	
	Respondents (n=188)	Counseling participants (n=23)
Gender		
Male	162 (87.1)	21 (91.30)
Female	26 (13.83)	2 (8.70)
Age (*mean*, SD)	21.08 (2.11)	21.59 (1.59)
FTND score (mean, SD)	2.24 (2.02)	2.74 (1.72)
Low dependence (0-3)	131 (69.68)	14 (60.87)
Moderate dependence (4-6)	52 (27.66)	9 (39.13)
High dependence (≥7)	5 (2.66)	0 (0)
PS E-Cigarette Dependence Index score (mean, SD)	(n=47) 6.28 (4.70)	(n=6) 5 (4.86)
Not dependent (0-3)	14 (29.79)	3 (50)
Low dependence (4-8)	21 (44.68)	2 (33.33)
Moderate dependence (9-12)	7 (14.89)	0 (0)
High dependence (≥13)	5 (10.64)	1 (16.67)

During the program, 6 participants were lost to follow up with no given reasons. Thus, only 17 subjects finished the whole program. Evaluation of smoking status and quality of life comparing before and after counseling can be seen in Table 3 and four respectively.

Table 3: Evaluation on Smoking Status (n=17).

Status	Total subjects (%)		
	Session 2 (1 day after QD)	Session 3 (7 days after QD)	Session 4 (30 days after QD)
Quit smoking	4 (23.53)	2 (11.76)	3 (17.65)
Reducing ≥ 50%	12 (70.59)	12 (70.59)	11 (64.70)
Fail to reduce ≥ 50%	1 (5.88)	3 (16.67)	3 (17.65)

4. Discussion

Comparison of before and after training result indicates a significant difference in counseling skills and confidence before and after ($p<0.01$), but not on the perceived-role. On the previous study by Kristina et al. to 242 pharmacy students in another university in Indonesia, these three parameters improved positively [5]. This difference could potentially be caused by the limited amount of pharmacy students involved in this study.

Seeing from the demographics, total respondent smokers who have low nicotine dependence were still higher compared to those with moderate and high dependence (69.68% and 60.87% respectively). This respondent differs from e-cigarette smokers,

Table 4: Evaluation on Quality of Life (n=17).

Parameter	Mean (SD)		t-score/ z-score	p value
	Session 1 (before QD)	Session 4 (30 days after QD)		
Short Form Survey (SF-36)				
Physical functioning[a]	93.23 (9.83)	94.41 (7.68)	-0.731[b]	0.465
Role-physical[a]	24.91 (6.04)	30.01 (7.28)	-0.574[c]	0.566
Role-emotional[a]	76.17 (36.65)	28.72 (6.97)	-0.321[b]	0.748
VItality	61.76 (12.98)	61.47 (19.59)	0.055	0.957
Mental health	70.12 (15.56)	68.35 (13.46)	0.403	0.692
Social functioning[a]	87.50 (17.12)	84.26 (25.24)	-0.197[c]	0.844
Bodily pain[a]	73.97 (22.85)	80.88 (20.91)	-1.513[b]	0.130
General health	63.23 (18.11)	68.23 (14.35)	-1.365	0.191
Health change[a]	48.53 (16.47)	52.94 (15.01)	-1.342[b]	0.180
Physical Component Summary (PCS)-36[a]	88.23 (13.30)	88.68 (12.67)	-0.259[b]	0.796
Mental Component Summary (MCS)-36[a]	75.38 (19.41)	74.68 (17.49)	-0.308[c]	0.758
Cessation-Targeted				
Social interactions	61.76 (20.48)	67.65 (18.25)	-1.326	0.203
Self-control	46.47 (16.18)	47.94 (13.35)	-0.433	0.671
Sleep	56.86 (18.22)	57.45 (17.76)	-0.145	0.887
Cognitive functioning[a]	61.27 (12.13)	62.74 (13.86)	-0.285[b]	0.775
Anxiety	66.18 (20.62)	65.44 (23.19)	0.133	0.896
[a]*Using Wilcoxon signed-rank test*				
[b]*Based on negative ranks*				
[c]*Based on positive ranks*				

where respondents who are not dependent or have low dependence is lower compared to those with higher dependence. Out of 188 respondents, 112 respondents (59.57%) were interested in participating in a smoking cessation counseling program. Some of the reasons are: they feel more comfortable if counseling was delivered by physicians or other health professionals (8.1%), do not consider counseling as an effective method to reduce or quit smoking (28.5%), do not need counseling to quit (they will quit if they want to) (42.3%), have limited time to participate in counseling program (23.6%), and others (17.9%). This correlates to the study conducted by Joshi et al. in Singapore to 347 smokers and ex-smokers, that the two main reasons they did not participate in counseling program were they would quit if they want to and they had limited time [13].

From 23 counseling participants, intrinsic motivation (58.82%) was admitted to be higher compared to the extrinsic (41.18%) in wanting to quit the smoking habit. Intrinsic motivation comes from the individual, such as improving health and self-confidence, while extrinsic comes from their outside environment, such as improving financial condition and being accepted among their social circle. A study conducted by Ryan and

Deci also has the same result, that even though both motivations can initiate behavioral change, intrinsic motivation has more association on the maintenance of health behaviors (including substance dependence) [14].

Evaluation of smoking status shows more participants succesfully reduced their cigarette consumption by ≥ 50% compared to those who failed or were able to quit altogether. Based on this result, we can conclude that counseling can be used to help smokers to reduce their smoking habit, but still not effective to stop it.

Evaluation on nicotine dependence (based on FTND score) shows a significant improvement ($p<0.01$) between the score on the first session (mean=2.58; SD=1.66) and the last session (mean=1.12; SD=1.45). This result means the participants' dependency on nicotine is declining and in line with the changes in smoking status.

Evaluation of quality of life (based on SCQOL score) shows no significant difference between before and after counseling. However, a positive trend can be seen on some parameters (role-physical, vitality, mental health, social functioning, MCS-36, anxiety). A study conducted by Olufade et al. shows a positive trend in mental health, MCS-36, and anxiety.[11] He hypnotized that the short interval between the first and last session (30 days point prevalence) might cause acute withdrawal symptoms, thus affecting participants' perspective on their physical and mental health negatively. Even though there is an association between smoking status and risk of diseases or death, there is no evidence yet on how reducing smoking on quality of life or other outcomes improvement [15].

As general feedback, 14 out of 17 participants who finished the program felt this program helped them to initiate and try quitting because they were being reminded or controlled by the counselors during the process. However, the counseling frequency was not often enough and could be supported by reminder or motivation via email or other media.

There are some limitations to this study. There was only one subject group without a control group, so subjects could not be compared. Subjects also voluntarily participated in the counseling because they already have the desire to quit and were limited to college smokers only, so the result of this study might be different if the program is implemented for the public. For subjects who also use an e-cigarette, the evaluation is hard because it is not used regularly.

5. Conclusion

Counseling as a method for smoking cessation is considered effective and potential to be applied by pharmacy students. 64.70% of smokers who participated in the program were able to reduce their cigarette consumption per day by ≥ 50%, while 17.65% stopped smoking altogether. The counseling sessions had a significant effect on reducing nicotine dependence (based on FTND score), but not on the quality of life (based on SCQOL score).

For long-term cessation and its impact, smokers' progress should be evaluated on a longer point prevalence (commonly at 3, 6, 9, or 12 months after QD) and verified biochemically to prevent bias. A pharmacist can also apply counseling in primary care or bigger healthcare facilities to increase smokers' motivation to stop smoking, especially for smokers whose disease will get worse by smoking. Knowledge and skills for counseling can be prepared through training based on the Rx for Change program as done in this study or other internet-based programs for easier access.

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Competing Interest

Authors declare that there is no competing interest.

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