

Counseling Intervention Programme to Improve Knowledge and Attitude towards Smoking among Adolescents in Two Districts in Selangor, Malaysia

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ABSTRACT: The objective of this study is to identify the profile of adolescent smokers and to measure the level of knowledge and attitude among smoking adolescents before and after the implementation of an intervention programme. 24 schools in two districts in the state of Selangor, Malaysia were selected by a simple random sampling. 346 students who have the intention to stop smoking were enrolled in the study. Students who agreed to participate in a group counseling were enrolled into the intervention programme (n = 158) while the remaining (n=188) were followed up in the nonintervention group. Group counseling was implemented by trained counselors using a smoking cessation package developed by the research group for a period of four months. The students were followed up for duration of one year. The level of knowledge and attitude were measured before the intervention, immediately after the intervention and during the follow up at fourth and eighth month after the intervention. The mean scores of knowledge and attitude at baseline for intervention and nonintervention groups are comparable. At second, third and fourth visit, mean scores of knowledge increased among students in the intervention group, while for the non-intervention group, the mean score knowledge raised at second visit but reduced at third and fourth visit. In term of attitude, it was found that the mean scores for both groups increased with time. Mean score for knowledge and attitude is highest at the second visit which was immediately after the intervention. This shows that it is important for the students to have continuous intervention in order to ensure that the knowledge and attitude score remains high. As a conclusion, it was found that the counseling intervention programme helps to increase knowledge of the students but was found difficult to change their attitude in a short period of time. Close monitoring and continuous intervention help to increase knowledge and attitude towards smoking among adolescents.

Keywords: knowledge, attitude, smoking, intervention, group counseling, adolescents

Introduction

Smoking leads to various negative effects on human health. The initiation and continuous habit of regular smoking behavior typically occur in adolescence (Kessler, 1995). There is a strong positive correlation between the starting age to experiment with cigarette smoking and the probability of becoming a regular smoker (Conrad et al., 1992). The stepwise process toward becoming a smoker involves initiation, experimentation, and eventually regular use. The trans theoretical model (i.e Stages of Change Theory) (DiClemente et al., 1992) provides insight into the processes of addictive behaviors such as smoking. In this model, smokers are classified into series: pre contemplation (no intention in quitting);

contemplation (those who are thinking about quitting, but have no commitment); preparation (smokers who plan to quit in the near future and who are engaging in behavior change, such as joining a cessation program); action (smokers who have remain smoke free for six months or less); maintenance (person who remain smoke free after six months).

Youths who smoke may experience immediate health consequences such as increased respiratory distress and illness, decreased physical fitness and an unfavorable lipid profile (USDHHS, 1994). Adolescent smoking may also be associated with alcohol and illicit drug use, violence, attempted suicide and suicidal ideation, and high risk sexual behaviour (McDermott et al., 1996). If youths continue smoking into adulthood, they will have increased risk for coronary heart disease, vascular disease, stroke and several types of cancer, especially lung cancer (USDHHS, 1994).

Adolescent smoking is a serious public health concern. Conventionally, efforts to reduce adolescent smoking have been focused on school-based prevention programme. In spite of their efficacy,

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these efforts do not address the needs of adolescents who already smoke and who may have been addicted to nicotine (Burton, 1994).

Finding ways to help teenagers stop smoking has been a challenge to researchers and practitioners alike. Currently there is very limited knowledge base to understand the general area of adolescent smoking cessation. Systematic evaluations of adolescent smoking cessation programmes are relatively few in number and have reported low success rates (Sussman et al., 1995; Burton, 1994; Gillespie et al., 1995).

When conducting research focusing on adolescents and smoking cessation, it is crucial to measure knowledge and attitude of the adolescents towards smoking as one of the indicator of the effectiveness of the intervention. Both factors contribute to the changing smoking behavior. Therefore, it is very important to measure attitude because it predicts the intention to perform behaviour, which in turn determines actual behavior (Ajzen, 1991). In this paper, we hypothesized that the adolescents who participate in group counseling smoking cessation programme will achieve higher knowledge and attitude, in contrast with those who did not join the programme.

Materials and Method

Participants

A total of 346 adolescents from 24 schools in two districts in Selangor participated in this study. There were 301 males and 45 females (14 years-old at baseline). All participants met the following criteria to be eligible for the study:

- ✓ Smoked at least 1 cigarette in the past 30 days (confirmed by self report and verified by carbon monoxide analyzer).
- ✓ Have intention to stop smoking (in contemplation, preparation and motivation stage).
- ✓ Obtained parental consent to participate in the programme and signed a consent form prior to the beginning of the programme.

Smoking cessation package

The Smoking Cessation Package was developed by experts from various fields including counseling and psychology, health promotion, counseling and education, clinical psychology and psychiatry. These experts work in the Ministry of Health, Malaysia, Ministry of Education, Malaysia and National Poison Centre, Universiti Sains Malaysia. Three modules were used as references including: i) Life Skill Training from National Poison Centre; ii)

Health Education Package by Hashami Bohari; (Hashami 1998) iii) Module CERAH, Ministry of Health. The content of modules was reviewed twice before implementation to ensure the efficacy and completion (accomplishment) of the modules. The package includes four sections of modules (consist of 10 sessions)

- ✓ 1st Module – Preparation to Stop Smoking (1st, 2nd session)
- ✓ 2nd Module – Decision Making (3rd, 4th, 5th session)
- ✓ 3rd Module – Managing Withdrawal Symptom (6th, 7th session)
- ✓ 4th Module – Remaining Cessation Status (8th, 9th, 10th session)

The programme used various strategies in group counseling process which includes discussion, handouts and posters, video presentation, puzzles, games and homeworks.

Study group

There were two study groups: Intervention Group (IG) (N = 158) and nonintervention group (control group). The IG received the ten sessions of 'Stop Smoking Module' in group counseling setting. Each of the 16 intervention schools recruited not more than 10 participants to build a group counseling, except for one school which has 20 participants. Each group was managed by a school counselor except for one school with 20 participants and this was managed by two counselors. The Control Group (CG) received no Stop Smoking Module, but was encouraged to quit smoking by counselor in their usual counseling practice.

Programme implementation

The intervention group met once a week for ten weeks and each meeting was about 1.5 - 2 hours. The groups met during the regular school hours or before the beginning of academic session when facing limitation by the management of the schools. All meetings were held in counseling room to ensure the confidentiality and privacy of participants.

Recruitment of facilitators

Each of the 16 intervention schools recruited one counselor except for one school which recruited two counselors for group counseling session. 17 counselors were involved in the intervention group. Criteria for selecting counselors include having at least one year of experience, formally trained in counseling and psychology, and had initially agreed upon implementing the prescribed group counseling session.

Training of facilitators

Facilitators attended two days of training workshop provided by the research team. Information was provided on Stop Smoking Module content and how to conduct group counseling session. More specifically, facilitators received instructions on programme implementation and some role playing sessions were introduced during training session with the aim to expose counselors to deal with real situation. Materials were also provided to the facilitators which include module guidelines for each session, information booklets on smoking and stop smoking, posters, compact discs about harmful effects of smoking and participants' diary.

Measures

Participant measures

Data was collected by researchers through several measures, each design to assess the following specific factors:

- i) Knowledge on smoking, and
- ii) Attitude towards smoking

Knowledge

Participants' knowledge of smoking was measured using questionnaires comprised 50 items (4 sections). The first section was measured on consequences of smoking and benefits of not smoking. The second section was about disease caused by smoking. The third section was about chemical content in cigarette and fourth section was general questions. For the first, second and third sections, the answers score between 0 and 1 (false and don't know = 0, true = 1 for positive item and vice versa for negative item). The fourth section comprised 4 questions with different responses. Questionnaires were measured before intervention, immediately after intervention (4 months after baseline), follow up after 4 months and after 8 months upon intervention (8 months and 12 months after baseline). The maximum score is 50 and the minimum score is 0. The reliability coefficient (Chronbach's alpha) for this instrument was 0.84.

Attitude

Attitudes towards smoking comprised 20 items in two sections. The first section consists of 11 questions which were validated by the counselors based on their opinion regarding actual questions measuring attitude towards smoking. Each question was scaled from 1 to 5. The minimum score was 11 and the maximum score was 55. A total of 11 counselors returned the questionnaires with the maximum score of 45 and minimum score of 31. Each question was weighted based on the score measured by the counselors. Questions having a

score of more than 44 were weighted 1.5 for good attitude while questions scored less than 44 score was weighted 1.0 for good attitude. The maximum score for this section was 12 and the minimum score was 0. In the second section which consists of 9 questions, the scores were set as 1 and 0 [(agree = 1, disagree and not sure = 0) for positive questions] and [(disagree = 1, agree and not sure = 0) for negative question]. The maximum score was 9 and the minimum score was 0. Overall score for attitude in both sections will have a maximum score of 21 (12 + 9) and a minimum score of 0.

Results

Baseline characteristic

TABLE 1 showed the baseline characteristics between intervention and non intervention group. There is no significant difference for all the parameters indicating that both groups were comparable.

Knowledge

Analysis of two ways repeated measure ANOVA was performed in order to access the changes in knowledge for Intervention and control group over time (1st visit (baseline), 2nd visit (4 months post baseline), 3rd visit (8 months post baseline), 4th visit (12 months post baseline)).

The results indicated that there was a significant effect of time for knowledge score. Knowledge of participants in intervention group increased from 24.29 ± 7.97 at the first visit to 29.10 ± 8.52 at the second visit, then decreased during the third visit (26.59 ± 8.26) and the fourth visit (25.54 ± 8.34). For non intervention group, the score of knowledge slightly increased from the first visit (23.58 ± 8.44) to the second visit (24.09 ± 8.69), and then decreased during the third visit (22.08 ± 8.04) and the fourth visit (25.54 ± 8.34). [Wilks' Lambda = 0.983, F = 11.522, $p < 0.005$, multivariate eta squared = 0.107 (moderate effect size)]. Note that eta squared is divided into 4 levels (0.01= small effect size, 0.06= moderate effect size, 0.14= large effect size) (Cohen, 1998).

Similar analysis also indicated that there was a significant effect of knowledge between intervention and non intervention group (intervention group gained more knowledge as compared to non intervention group (24.29 ± 7.97 vs 23.58 ± 8.44 on the first visit), (29.10 ± 8.52 vs 24.09 ± 8.69 on the second visit) (26.59 ± 8.26 vs 22.08 ± 8.04 on the third visit) and (25.54 ± 8.34 vs 21.26 ± 9.60 on the fourth visit). Eta squared was 0.078 (moderate effect size). Our data also show there was an interaction effect for

both groups $p < 0.005$ with Wilks Lambda being 0.093 and eta squared being 0.065 (TABLE 2).

Attitude

Analysis of two ways repeated measure ANOVA was performed to assess the changes in attitude for intervention and non-intervention groups over time (baseline –1st visit), 2nd visit (4 months post baseline), 3rd visit (8 months post baseline), 4th visit (12 months post baseline). There was a significant effect for time in both intervention and nonintervention group. Attitude for the intervention group increased from 9.05 ± 2.08 at the first visit to

14.09 ± 3.30 at the second visit, then decreased during the third and fourth visits (13.05 ± 3.00 and 12.85 ± 3.03 respectively). A similar trend was observed in the nonintervention group with attitude being increased from 8.95 ± 2.11 at the first visit to 14.04 ± 3.33 at the second visit, then decreased during the third (12.39 ± 3.21) and fourth visit (12.22 ± 4.05) [Wilks' Lambda = 0.332, F = 192.67, $p < 0.005$ and multivariate eta squared = 0.668 (large effect size)]. There was no significant effect of attitude between intervention group and nonintervention group and no significant interaction for both groups (TABLE 3).

TABLE 1- Baseline characteristic of intervention and non-intervention group

Parameter	Frequency (%)		P-value
	Intervention (n = 158)	Non intervention (n = 188)	
Sex			
Male	143 (90.5)	158 (84.0)	0.075
Female	15 (9.5)	30 (16.0)	
Race			
Malay	153 (96.8)	179 (95.2)	0.425
Chinese	2 (1.3)	1 (0.5)	
Indian	3 (1.9)	6 (3.2)	
Pocket money	157 (RM2.80 ± 1.65)	181 (RM3.00 ± 2.38)	0.442
Initiation age of smoking			
< 9	12 (7.6)	19 (10.2)	0.222
10 or 11	25 (15.8)	34 (18.2)	
12 or 13	91 (57.6)	87 (46.5)	
14 or 15	30 (19.0)	47 (25.1)	
Number of cigarettes			
<1 stick	60 (50.6)	114 (61.0)	0.156
2- 5 sticks	63 (39.9)	59 (31.6)	
> 6 sticks	15 (9.5)	14 (7.5)	
Fragestrom Scale			
Less addicted	138 (87.3)	161 (85.6)	0.494
Moderate addicted	18 (11.4)	21 (11.2)	
High addicted	2 (1.3)	6 (3.2)	

TABLE 2- Mean score of knowledge based on two way repeated measure analysis

Visit	Mean Score	
	Intervention (n = 134)	Non intervention (n = 158)
Baseline (1 st visit)	24.29 ± 7.97	23.58 ± 8.44
4 months post baseline (2 nd visit)	29.10 ± 8.52	24.09 ± 8.69
8 months post baseline (3 rd visit)	26.59 ± 8.26	22.08 ± 8.04
12 months post baseline (4 th visit)	25.54 ± 8.34	21.26 ± 9.60

Within subject effect (time effect = significant; interaction effect = significant)
 Between subject effect (between groups = significant)

TABLE 3- Mean score of attitude based on two way repeated measure analysis

Visit	Mean Score	
	Intervention (n = 134)	Non intervention (n = 158)
Baseline (1 st visit)	9.05 ± 2.08	8.95 ± 2.11
4 month post baseline (2 nd visit)	14.09 ± 3.30	14.04 ± 3.33
8 month post baseline (3 rd visit)	13.05 ± 3.00	12.39 ± 3.21
12 month post baseline (4 th visit)	12.85 ± 3.03	12.22 ± 4.05

Within subject effect (time effect = significant; interaction effect = significant)
 Between subject effect (between groups = non significant)

Discussion

Our results show that the knowledge of smoking among participants in intervention group has increased gradually in every visit. The second visit showed the highest increment of smoking awareness among participants compared to the other three visits. In contrast, the knowledge for a non intervention group illustrates only a slight growth of alertness, and then diminished after the second visit. This phenomenon indicates that the participants in the intervention group had information from group counseling session. The study shows similar finding in the work of Lee et al. (2007) who found that knowledge about harmful effects caused by tobacco in experimental group was significantly superior (M = 17.11) as compared to control group (M = 15.46). These findings strongly proved that group counseling in smoking cessation programme helped participants to enhance their knowledge. In contrast, non intervention group has weaker capability to inhibit smoking behaviour due to limited knowledge on stop smoking. In our study, group counseling was conducted in small number so that it permitted adolescents to discuss on detailed information. The participants in group counseling had better attention from the counselor compared to non intervention group which received less attention in a bigger lecture group.

In terms of attitude towards smoking, the recent study showed the attitude of the intervention group raised soon after the group counseling programme and declined after four months and 8 months without intervention. The similar results were observed for non intervention group which increased at the second visit and diminished at the third and the fourth visits. This observation is in agreement with the study on “Not on Tobacco” (Dino et al. 1998) which showed the attitude for both intervention and non intervention group deteriorated after intervention from 55.3 to 52.8 and 48.0 to 47.0 respectively.

The present study revealed that knowledge and the attitude have increased after the intervention indicating that it is important for the students to have

continuous intervention in order to ensure that the knowledge and attitude score remains high.

The intervention programme had implication in increasing the knowledge on smoking and attitude but there was little different for the attitude of participants. Schofield et al. (2003) has done the cohort study for two years and showed the intervention programme was successful in improving smoking knowledge, but not attitudes, in intervention versus control group (P < 0.001).

An attempt to change the attitudes has not been successful. Perhaps, a better attitude intervention should also employ social reinforcement consisting of discussion, modeling behavior, role play, extended practice, and public commitment for not to smoke (Bruvold 1993).

Conclusion

An intervention programme of group counseling smoking cessation is relevant among adolescents to assist them in understanding the harmful effects of smoking. Even though there is not much implication on attitude of adolescents, it still has positive effects on the knowledge of adolescents about smoking cessation. In the process of changing their attitude, ample time with more effort and cooperation from everybody involved in the programme is a key factor. Close monitoring and continuous intervention help to increase knowledge and attitude towards smoking cessation among adolescents.

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