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原住民學童與家長之傳播媒體與預防性衛生教育介入成效 研究(I)

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一、中英文摘要

國內嚴重缺乏以原住民為主的傳播媒體與菸、酒、檳榔衛生教育介入研究。觀察原住民前三大死因，且考量物質使用行為的聚集性，本研究主旨為發展以原住民青少年為對象的預防性衛生教育計畫，研發出適切的拒菸、節酒和拒嚼檳榔等的衛生教育介入計畫與衛教媒體並進行試教。

本研究為一衛生教育介入的先驅性研究，以學校為進入社區的切入點，採前後測研究設計，運用文獻研析、SWOT表和社區情境分析、學校意見領袖焦點團體，分析影響學生之吸菸、飲酒、嚼檳榔等成癮物質使用的因素，診斷青少年預防性教育需求，研發設計適切的預防性衛教計畫與相關媒體，並在台北縣某一國中進行此三大議題的試教。

結果顯示，在助益部分，學生對教學活動反應良好，不論是預防吸菸、節酒、拒嚼檳榔等衛教活動，多數人皆認為有幫助，沒有學生覺得這些教學活動沒有幫助。學生對教學活動主題及學生手冊的滿意程度普通。整體而言，本次衛生教育活動讓學生在對菸、酒、檳榔的相關知識進步不大，僅對吸菸的知識問題，答對率有顯著增加。教學活動讓學生對吸菸的負面影響有增強的作用，學生已經認為吸菸的

缺點多於優點，而且也更加認同吸菸會影響身體健康造成可怕的疾病。在節酒教育的部分也有類似成效，學童降低對飲酒好處的認可。至於預防嚼檳榔教育，在學童的態度及預期結果上並無產生改變。

本研究為一先驅性的介入研究，工作重點放在教學媒體與教學單元的發展，與探究其介入成效，因此研究對象數量有限，而且無對照組，此為主要研究限制，而介入成效的測量時間點尚未能有後測的結果，因此無法看出延宕效果。建議將來可以擴充研究的學校數，採實驗、控制組的前後測設計，並安排後測，以補強目前的限制。

關鍵詞：原住民青少年、拒菸教育、預防性飲酒教育、預防性嚼檳榔教育

Abstract

Death registry showed an elevated distribution of lung cancer, liver cancer/cirrhosis, and oral cancer, which were highly associated with tobacco, alcohol, and betel nut use, in aboriginals, the priority/minority population in Taiwan. In order to control/prevent the long-term development of the diseases, effective health education programs for youth are in great

demand. However, few studies explored this area in Taiwan. The purpose of this study was to develop preventive programs in tobacco, alcohol, and betel nut use for aboriginal adolescents.

Literature was reviewed to summarize the related factors of tobacco, alcohol, and betel nut use in adolescents. The purposes of this study are to conduct a school-based media campaign and educational program with a pre-post test design at a northern aboriginal junior high school. In order to promote adolescents' decision-making and behavior change, the program was built on the psychosocial factors including knowledge, attitude, self-efficacy, and expected outcome. A series of structured courses were developed and evaluated. Multiple forms of media including fliers, posters, booklets, flash animated movie, and web pages were developed. Pre/post test were given to evaluate the effectiveness of the program.

Data was collected using structured questionnaires and learning worksheets. Study results indicated that media-based learning materials and structured courses were somehow effective. Students' responses toward the educational program were positive, in terms of helpfulness, satisfaction, or time arrangement. With regard to knowledge, only knowledge related to anti-smoking was improved significantly. Educational program intensified students' negative attitude toward smoking and drinking. This program also increased students' awareness of the adverse health consequences of smoking (expected outcome). Similar results were not found related to drinking or betel nut use.

The pilot study focused on designing and developing educational media and teaching activities. The preliminary results of program effectiveness suggested that the programs could help health professionals developing effective approaches in preventing substance use and guide them to establish a valuable model.

Keywords:

Aboriginal adolescents, anti-smoking education, responsible drinking betel nut use prevention

Introduction

The prevalence rates of smoking, drinking and betel nut use among aboriginal people were much higher compared to non-aboriginal counterparts (Wu, Lu, & Chang, 2001; Lin & Huang, 2000). The prevention program of smoking, drinking and betel nut use should focus on the aboriginal adolescents without these substance use behaviors. This study utilized health education and media interventions to develop intervention programs for preventing smoking, alcohol, and betel nut use for Aboriginal adolescents in Taiwan. The purposes of this study are to identify the needs of prevention education regarding preventing smoking, alcohol, and betel nut use for an aboriginal school, development the structured courses and teaching media.

Chen and Yen (2001) pointed out that the prevalence rates of smoking, drinking and betel nut chewing were at 27.7%, 40.4% and 14.2% for adults, on the contrast, 7.8%, 13.5% and 2.7% for adolescents. Based on this phenomenon, the prevention program should target adolescents for preventing these substance use behaviors in order to lower the plaques of substance use behaviors. Pulkkinen (1983) indicated that smoking and drinking behavior are prone to initiate at adolescent stage. If adolescent addict these substance, he/she may become a regular user when grow up (Guo, 2003). The longer an adolescent is addicted to tobacco, wine and betel nut, the lower possibility to quit (Liou & Chou, 2000; Liou & Chou, 2001). If adolescents receive prevention education at early life-stage, it may reduce the addictive year and intensity.

One study pointed out the prevalence rates of smoking and drinking for city aboriginal adolescent students were 28.5% and 26.0% respectively in Taiwan(Wei & Chang, 1999). Another one indicated that the

rates regarding smoking, drinking and betel nut use for aboriginal student were 31.8%, 35.8% and 22.3% respectively. Compared to these aboriginal students, the prevalence rates among non-aboriginal peers were only 12.9%, 20.3% and 5.0% (Li & Chang, 1999). Liou Mei-Yuan and Chou Bi-Thau (2001) studied adolescent subjects from 51 junior high schools, 12 senior high schools, 27 occupational schools and 10 junior colleges found that 30.2% aboriginal students are regular drinker, 42.5% of them initiated drinking before 12 years old. Based on these finding, it is reasonable to state that the prevalence rates regarding smoking, drinking and betel nut use were higher for adolescent students compared to non-aboriginal peers. It is urgent to develop prevention program for these aboriginal students with high risk to prevent from becoming a regular user.

Muhlenkamp & Sayles (1986) found that health life style was influenced by personal self-esteem and social support. McDermott, Sarvela & Hoalt (1992) indicate that smoking was associated with personal self-esteem, personality, social support and life stress. In addition, some researchers attributed the reasons of smoking into three dimensions include individual, family and social factors. Individual factors refer to curiosity, cognition to peers, showing mature, avoid unhappy situations, transforming distress, low academic performance and low level of smoking knowledge. Family factors refer to parents' smoking behavior. Social factors refer to the surrounding environment, social influence and smoking advertisements (Huang, Tso, Yin, Yang, & Huang 1996) .

With regard to the reasons of drinking that are also attributed to three dimensions. Individual factors refer to drinking motivation, academic performance, and drinking attitudes. Family factor refer to unharmonious family relationships. Social factors refer to peer characteristics and social

culture. In addition, Chen pointed out that the reasons of drinking couldn't be explained by single theory. The reasons may be classified into psychological, physiological and social factor. Psychological factors refer to personality, releasing anxiety, low self-esteem etc. Social factors refer to modeling effect of adult drinking behaviors, favorable drinking culture, drinking promotion advertisements. At last, physiological factors refers to genetic and body function.

Method

Research Design and subjects

This study used a pre-post design. All seventh graders, 40 students, of the only junior high school of local community received educational and media programs to prevent tobacco, alcohol, and betel nut use.

Procedures and Intervention Strategies

The intervention site was a northern aboriginal township. The criteria of selecting intervention site were as follows: 1. a structured community separated to the others, all junior high school students go to the same school, 2. community residents share the same living environment and local cultures, 3. residents are Atayalian and speak the same native language.

The research team was consisted of two university faculty, four graduate and two undergraduate students. Based the selection criteria, three schools were listed as candidates for intervention. After conducting focus group meetings, SWOT analysis and telephone interviews. Wu-Lai junior high school was selected as the intervention sites finally.

Development of Curriculum

The period of curriculum development was from November 2002 to January 2003. This curriculum was consisted of 16 sessions. There are four independent sessions for three topics such as smoking, drinking, betel nut use. The first session was to establish background

knowledge regarding each substance. The second one focuses on building positive attitudes toward substance abuse. The third and four sessions assist students to develop their social skills to resist negative social influences. In addition, four sessions was used to develop individual action plan to prevent from becoming a substance user. The educational program was implemented from February to April 2003.

Development of Teaching Media

Teaching media include flier, booklets, posters, flash animated movie, web pages and course certificate. Local nurse, schoolteachers, clergyman, Atayal language expert, and health education specialists reviewed teaching media. The teaching contents, photos and pictures were modified to fit the reading levels of students.

Evaluations and Measurement

During the development processes of educational and media programs. Three focus groups were conducted to collect related information regarding smoking, drinking and betel nut use. The members of focus group include research teams and school principal, director of academic affairs, director of student affairs and schoolteacher. The evaluation plan included process and impact evaluations. The process evaluation use questionnaires to measure students' satisfaction and likeness regarding preventive education program. The impact evaluation use questionnaires to measure the changes of knowledge, attitude, self-efficacy, outcome expectation and prevalence rates regarding smoking, drinking and betel nut use. All questionnaires were keyed in and analyzed by SPSS 11.0/PC.

Research Findings

Process evaluation of educational program

The results of this pilot intervention study show that most of the students are fond of having the preventive health educational program on smoking, drinking,

and chewing betel nuts. Among 40 students, half of them agree that these teaching activities are helpful (smoking prevention: 22 students, responsible drinking: 20 students, anti-chewing betel nuts: 26 students). However, some of them did not give any preference on these activities (smoking prevention: 15 students, responsible drinking: 8 students, anti-chewing betel nuts: 6 students).

Regarding to level of satisfaction with the educational contents, no student is not satisfied. Twenty-two students were satisfied with educational contents of smoking prevention whereas responsible drinking was 19 students, anti-chewing betel nuts was 23 students).

Number of students satisfied with learning booklet was smoking prevention 15 students, responsible drinking 13 students, anti-chewing betel nuts 22 students. With regard to time arrangement of the activities, most of students thought the time arrangement were adequate (smoking prevention: 32 students, responsible drinking: 16 students, anti-chewing betel nuts: 25 students). Few students felt too long (smoking prevention: 1 students, responsible drinking: 8 students, anti-chewing betel nuts: 2 students), however, some felt too short (smoking prevention: 4 students, responsible drinking: 4 students, anti-chewing betel nuts: 6 students).

In sum, students' responses toward the educational activities were positive, in terms of helpfulness, satisfaction, or time arrangement. Although the behaviors of smoking, drinking, and chewing betel nuts were universe among aboriginal adults, majority of parents don't allow their children to perform those behaviors. Even some of the students reported that experiencing these substances, none of them currently addict. Therefore, most of the students view themselves participating the educational activities for fun and interests rather than a active learner.

Impact evaluation of health educational program

Since the adverse health effects of smoking, drinking, and chewing betel nuts have been emphasized by school staffs or public media, students' knowledge scores of smoking, drinking, and chewing betel nuts were generally high. Although the average scores were improved after implementation of the educational program, only the difference of pre-post knowledge scores about smoking was demonstrated statistically significant (Table 1).

Most students perceived unfavorable social norms to smoking, drinking, and chewing betel nuts behaviors from their parents, relatives, or friends. Compared to pre-post scores, students perceived higher degree of unfavorable social norms to drinking, and chewing betel nuts behaviors from their parents, relatives, or friends, but the degree regarding smoking behavior were not statistically significant. Further analyzing students themselves' degree of unfavorable social norms to these behaviors, results indicates that the degree of unfavorable social norms to chewing betel nuts was becoming more intensive after participating educational program.

With regard to smoking behavior (possible score range from 23 to 115), the higher scores indicated that more negative attitudes toward smoking behavior. Most students showed negative attitude toward smoking behavior at pre- and post-tests (average scores from 96.96 vs. 99.54). However, the difference between pretest and posttest scores was not statistically significant. Advanced analyzing each item in the attitude subscale that contains 23 items, 8 among them changes statistically significantly from pretest to posttest. These items are "smoking is a big enjoyment of life;" "it's easier to make friend by sharing cigarettes to others;" "advantages of smoking are more than disadvantages;" "smoking can inspire personal creative thoughts;" "I smoke when I felt boring;" "Smoking is a good strategy for refreshing when I am tired;" "after-meal smoking makes me as happy as a fairy" "smoking is a gradually suicidal behavior."

These results indicate that students more strongly disagree with smoking as enjoyment, or smoking as a strategy for making friends, inspiring thoughts, managing boring and refreshing, after participating the educational program than with the other items. They also more support smoking as a gradually suicidal behavior (Table 2).

With regard to drinking behavior (possible score range from 17 to 85), the higher score also indicated the more negative attitude toward drinking behavior. Most students have negative attitude toward drinking behavior at pre- and post-tests (average scores from 64.04 to 69.20). The difference between pretest and posttest scores reached statistically significant level of 0.05. It means that student have more negative attitudes toward drinking behavior after participating in educational program. Advanced analyzing each item in the attitude subscale, 6 items changes statistically significantly from pretest to posttest. These items are as follows: "drinking is a nice reward after hard working;" "drinking cool beer after exercise is acceptable;" "drinking makes me feel like an grown-up;" "drinking is a good way to improve interpersonal relationship in parties;" "drinking makes me relax;" "drinking makes me feel confident and brave." These results indicated that students more strongly disagree about drinking as a moderator of improving interpersonal relationship, as a mean of reward, or as a strategy of being confident and brave, after participating the educational program (Table 3).

With regard to betel nut chewing behavior (possible score range from 23 to 115), the higher score also indicated that the more negative attitudes toward betel nut chewing behavior. Most students have negative attitudes toward betel nut chewing behavior at pre- and post-tests (average scores 94.09 vs. 96.36). However, the difference between pretest and posttest scores didn't reached statistically significant

level of 0.05. Advanced analyzing each item in the attitude scale, no item score changed statistically significantly from pretest to posttest.

With regard to self-efficacy subscale (measured by 0 to 10 responding scale, 0: felt absolutely no confident, 10: felt absolutely confident), the higher score indicates that students felt more confident of not smoking, drinking, or chewing betel nut under various tempting situations. The study findings indicate that students' self-efficacy inclined toward absolutely confident of not doing those behaviors. Only the pretest self-efficacy scores of not drinking were lower than 9, self-efficacy scores of not smoking or chewing betel nut were all above 9. Since the scores reached the highest point, the score differences between pretest and posttest did not reach statistically significant level of 0.05.

With regard to expected outcome, the higher score indicates that students felt there is a higher possibility to occur adverse consequences related to smoking, drinking, or betel nut use behaviors. A statistically significant difference was found in terms of expected adverse outcomes of smoking behavior. It shows that students felt there is a higher possibility of developing cancer or other diseases related to smoking after participating educational program. No statistically significant difference of expected outcome was found in the other two behaviors.

Discussion and suggestion

In order to develop an educational program which was suitable to aboriginal culture and students' life experiences, the research team interviewed school principle, primary teachers, community nurse, and church priest. These key people were welcome our programs on substance use for these aboriginal adolescents and provided needed assist to the research team. The wonderful experience made us feel that it is a meaningful work in helping these underserved students.

None of the students engaged in smoking, drinking, or chewing betel nut behaviors currently. Thus, most students viewed themselves participating in educational activities for fun and interests rather than a active learner. Aboriginal students prefer drawing, singing, and fine art activities to writing and lecturing. With regard to the limited personnel and funding, the original research design didn't plan to collect qualitative data. Further study can use an appropriate activity diary to record qualitative process of the educational activities.

The results of impact evaluation revealed a slight improvement in knowledge, subjective norm, attitude, self-efficacy, and expected outcome. Possible reasons were: 1) there is no enough time to internalize learning experience at posttest; 2) the preventive educational program targeted students who don't use any substance currently. Ceiling effect was found in some measures of the study. Therefore, there is limited improving space (e.g., self-efficacy of not smoking, drinking, and betel nut drinking); 3) as a pilot study, it suffers from small sample size (n=40) that may result in limited power to detect any significant differences between pretests and posttests; 4) the improvement of knowledge, attitude, and expected outcome related to anti-smoking was more obvious than those related to responsible drinking and no betel nut use, which may attribute to school emphasize anti-smoking messages on campus .

It is notable that students' negative attitude toward drinking was intensified after participating the educational program. According local key person (e.g. church priest and school teachers), they stated that drinking problem was the most serious substance use among aboriginal people. Hence, they were very exciting about the educational program successfully changing students' attitude toward drinking.

As a pilot study, we focused on

developing appropriate preventive educational and media programs. Although the inferences of this study is limited to small sample size and lack of control group, it did demonstrate a good example to develop preventive programs for underserved aboriginal students. In addition, learning experiences may need more time for internalization. Therefore, suggestions for further study were to increase sample size, include a control group, and add a measuring time point after few weeks at the end of program. Implications of the study were suggested as follows: first, aboriginal adolescents were an underserved population, they deserve more health professionals' attention and assist to help them prevent substance use. Second, culture-appropriated educational program can make some differences regarding these three substance use behaviors. Third, more resources should be invested and utilized to develop substance use prevention program. In addition, the media campaign and preventive education programs can help health professionals to develop the other effective approaches to work on these important health topics and guide health professionals and community workers to establish a valuable model of substance abuse prevention.

Outcome evaluation

Basically, this study has achieved the original research purposes. Research team members, other health professionals and schoolteachers currently utilize the structured course and teaching materials. We will present the findings at academic conference at the end of this year and sent the paper in peer-reviewed journal to get published. Based on the results of this first-year study, we believe that the second-year study will implement smoothly.

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Table 1: Effective ness of preventive educational program on smoking, drinking, and betel nut use

	Knowledge	Subjective norm	Attitude	Self-efficacy	Expected Outcome
Smoking					
Pretest	9.16	38.52	96.96	46.31	24.30
Posttest	10.19	38.00	99.54	46.41	30.07
P value	.001**	.310	.319	.947	.000***
Drinking					
Pretest	10.69	34.65	64.04	52.39	21.91
Posttest	10.86	37.81	69.20	55.55	22.06
P value	.699	.036*	.042*	.178	.821
Betel nut use					
Pretest	9.52	32.38	94.09	54.32	18.31
Posttest	10.11	36.92	96.36	55.32	18.81
P value	.144	.008*	.422	.748	.315

Table 2: Pair t-test of pretest and posttest of attitude toward smoking

Attitude	Pretest	Posttest	P value
Smoking is a big enjoyment of life	4.27	4.67	.040*
Smoking makes me charming	4.27	4.64	.097
Smoking can help me to control weight	3.88	4.12	.402
It's easier to make friend by sharing cigarettes to others;	4.18	4.67	.007**
Advantages of smoking are more than disadvantages;	4.00	4.70	.012*
Nonsmoker should advise smoker to stop smoke	4.28	4.25	.918
I will try to help my friends quit smoke if they were smokers	4.16	3.78	.195
Nonsmoker is more healthy than smoker	4.31	4.28	.904
It's no good to smoke since smoker is easier to develop cancer	4.12	4.15	.908
Smoking can inspire personal creative thoughts;”	3.82	4.55	.006**
It's against law of selling cigarettes to minors	4.39	4.21	.469
Smoking is a personal right which should not be limited	3.85	3.97	.594
Smoking makes others un comfortable	3.69	3.50	.540
I smoke when I fell boring	4.12	4.64	.003**
Smoking is a good strategy for refreshing when I am tired	3.70	4.42	.001***
After-meal smoking makes me as happy as a fairy	4.21	4.58	.026*
Smoking is a good strategy for releasing stress	4.03	4.39	.070
Producing second-hand smoking is not right	4.44	4.16	.343
I follow celebrities to participate anti-smoking activities	4.28	4.25	.839
Smoking is a slowly suicidal behavior.	3.63	4.68	.007**
It's OK to smoke when teacher is no around	4.28	4.50	.090
Smoking is a social behavior	4.06	4.10	.887
Smoking wastes money	4.42	3.97	.100

Table 3: Pair t-test of pretest and posttest of attitude toward drinking

Attitude	Pretest	Posttest	P value
Drinking is helpful for open conversation with others	3.84	4.25	.074
Adolescents' drink is a cool behavior	4.03	4.25	.214
Drinking is a nice reward after hard working	3.30	3.70	.043*
Drinking cool beer after exercise is acceptable	3.47	4.16	.003**
Drinking makes me feel like an grown-up	3.88	4.38	.016*
Drinking is a good way to improve interpersonal relationship in parties	3.70	4.23	.047*
In order to make friends happy, I will drink	3.97	4.16	.280
Drinking should always be button-up.	3.87	4.16	.213
Drinking can recover fatigue	3.70	3.93	.326
It's OK for adolescents to drink only if they don't get drunk	3.88	4.22	.118
Drinking is a good way to keep warm	3.65	3.74	.708
Drunk similar to sleep is not a big deal	3.91	3.84	.815
Minors should not drink	3.97	3.91	.857
Drinking drivers are easier to have accidents	4.28	3.81	.126
Drinking makes me relax	3.52	3.97	.037*
Drinking makes me feel confident and brave	3.22	3.69	.037*