学　位　論　文

Family Environment Factors to Impact on the Effect of the Smoking Prevention Educational Program for Elementary and Junior High School Students

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奥田　紀久子

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Family Environment Factors to Impact on the Effect of the Smoking Prevention Educational Program for Elementary and Junior High School Students

Kikuko Okuda[1,2], Hiroki Okada[3], Tetsuya Tanioka[1], Kyoko Osaka[1]

[1]Faculty of Nursing, Institute of Biomedical Sciences, Graduate School, Tokushima University, Tokushima, Japan
[2]Graduate School of Medicine, Kagawa University, Kagawa, Japan
[3]Faculty of Medicine, Graduate School of Medicine, Kagawa University, Kagawa, Japan
Email: okuda@tokushima-u.ac.jp

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Abstract

Smoking is a major health problem in many countries. It has been reported on the effects of education on youth with a reduced smoking rate and developed awareness of avoiding smoking verified as a result of educational intervention. The aim of this study was to verify the relationship between sex, school age, and family smoking and the effectiveness of smoking prevention education program (SPEP) as factors that impact the effectiveness of SPEP in elementary school and junior high school students. The participants in this survey were 6676 students, who attended elementary and junior high schools in Tokushima Prefecture between 2011 and 2015, and attended the SPEP. As factors that influence the effectiveness of the SPEP, we examined school types, sex, smokers in the family. Participants were asked the following questions before and after the SPEP to measure awareness of and attitudes toward smoking: "intention not to smoke cigarettes as adults", "intention to refuse cigarettes when offered", "attitude of staying away from smokers", and "desire that their family will not smoke". The number of survey collected was 6676, with effective responses from 5974 (90%). Among the 5974, there were 2963 (50%) males and 3011 (50%) females, 5106 elementary school students (86%), and 868 junior high school students (15%). Findings showed that having smokers in the family affects not only children's intention and attitude toward smoking, but also the effectiveness of smoking prevention education. Especially, it was difficult to improve children's "intention not to smoke as adults", "intention to refuse cigarettes when offered", "attitude of staying away from smoke-

rs", and "desire that their family will not smoke". Therefore, it was thought that SPEP to be less effective, in mentioned situation, in improving awareness of and attitudes toward smoking among elementary and junior high school students.

Keywords

Smoking Preventing Education, Elementary Students, Junior High Students, Family Environment

1. Introduction

The causal relationship between smoking and diseases has been elucidated. Smoking is a major health problem in many countries [1] [2]. Therefore, health education on smoking is required [3]. According to the survey conducted by the Ministry of Health, Labor, and Welfare, the smoking rate has decreased in the last 10 years, and was 19.8% in 2017 [4]. Nevertheless, the smoking rate among males in their 30 s to 40 s is around 40%, which places Japan above many OECD member countries [5]. Furthermore, health damage from cigarettes is not limited to the smokers themselves: harm caused by passive smoking through secondhand smoke and exhaled smoke cannot be overlooked [6] [7] [8].

To reduce health damage from cigarettes, Japan implemented a national policy aimed at development and enlightenment as part of Health Japan 21 and the Health Promotion Act. In Japan, it is also mandatory to provide smoking prevention education program (SPEP) during the early stages of schooling.

Many countries have already reported on the effects of education on youth [9] [10] [11] [12], with a reduced smoking rate and developed awareness of avoiding smoking verified as a result of educational intervention [13]. In Japan, smoking is legally allowed over 20 years of age, but the current SPEP is provided in almost all elementary schools from third grade.

Nevertheless, it has been reported that awareness of and attitudes toward smoking are influenced by family smoking habits and family environment [14] [15]. The aforementioned report mainly discusses the link between smoking by parents and their children. It reported that when parents smoke, it leads to early smoking behavior in children [16].

As such, it can be assumed that family environment and family smoking habits have an impact on the effectiveness of SPEP. It was thus decided in this study that it was necessary to focus on the family environmental factors that affect educational effectiveness, in order to ensure more effective SPEP for elementary school students and junior high school students.

The aim of this study was to verify the relationship between sex, school age, and family smoking and the effectiveness of SPEP as factors that impact the effectiveness of SPEP in elementary school and junior high school students.

2. Method

2.1. Participants

The participants in this survey were 6676 students, who attended elementary and junior high schools in Tokushima Prefecture between 2011 and 2015, and attended the SPEP provided by instructors and issued by the Japan Medical Association.

2.2. Measures

As factors that influence the effectiveness of the SPEP, this study examined school types, sex, smokers in the family, family breakdown, conversation about smoking with the family, and intention to talk about SPEP with the family. Participants were asked the following questions before and after the SPEP to measure awareness of and attitudes toward smoking: "intention not to smoke cigarettes as adults", "intention to refuse cigarettes when offered", "attitude of staying away from smokers", and "desire that their family will not smoke". The authors designed the questionnaire based on the some previous studies [17] [18] and the curriculum guidelines provided by the ministry of education, culture, sports, science and technology. Developed questionnaire was obtained expert opinions from the Japanese Association of Smoking Control Science courtesy of its president. Moreover, it made modification to the question items after the preliminary survey to confirm this questionnaire's content validity and reliability.

The questionnaire was distributed and collected by homeroom teachers. A preliminary survey was conducted during the week before the SPEP and a post survey was conducted on the same day as the SPEP. The questionnaire was anonymous, but an ID number was used so that questionnaires from before and after the intervention could be linked.

2.3. Implemented Smoking Prevention Educational Program

It was conducted the SPEP with public elementary and junior high school students in Tokushima Prefecture from 2011 to 2015. The SPEP was implemented using the same contents (Introduction, History of cigarette, Adverse effects of smoking, Diseases due to smoking, Secondhand smoking, Role playing to refuse cigarettes when offered) issued by instructors from the Japan Medical Association, and delivered by professionals trained on the same program. The educational intervention was provided only once, and lasted 45 to 50 minutes.

2.4. Statistical Analysis

Defective answers were excluded, and the basic statistics was done. Four items on intention and attitudes toward smoking were used as dependent variables, while the independent variables were sex, school types, smokers in the family, conversation about smoking with the family, and intention to speak about the SPEP with the family.

Through comparison of intentions and attitudes toward smoking before and after the intervention, we created a "continuation group", including those who already had the desired awareness and attitudes, an "improvement group", for those who improved after SPEP, and a "no improvement group" of those who showed no improvement after the SPEP.

The relationships were analyzed using the Pearson chi-square test, adjusted residual analysis. Some values for chi square test were calculated excluding missing values. Statistical analyses were performed using SPSS 20 (SPSS Inc., Chicago, IL, USA). The level of statistical significance was set at 0.05.

A priori analysis for a chi-square test was conducted using the Statistical power analyses software: the G * Power (version 3.1) [19]. Sufficient sample size using an alpha 0.05, a power of 0.95, and the required sample size was 172 based on the aforementioned assumptions.

2.5. Ethical Considerations

This research was approved by the University of Tokushima hospital clinical study Ethical Review Board (approval number 1248). Participants were notified that privacy would be protected as only aggregate data would be utilized in reporting of findings.

3. Result

3.1. Demographic Data

The participants' characteristics are shown in Table 1.

Table 1. Characteristics of 5974 participants.

Items	n	(%)
Gender		
Male	2963	(49.6)
Female	3011	(50.4)
Classification		
Elementary school	5106	(85.5)
Junior high school	868	(14.5)
Smoker in family		
No	2688	(45.0)
Yes	3286	(55.0)
Father	2365	(72.0)
Mother	1012	(30.8)
Parents	631	(19.2)
Conversation about cigarettes with the family		
Yes	3452	(57.8)
No	2522	(42.2)
Intention to speak about SPEP with family		
Yes	3702	62.0
No	2272	38.0

The number of survey collected was 6676, with effective responses from 5974 (90%). Among the 5974, there were 2963 (50%) males and 3011 (50%) females, 5106 elementary school students (86%), and 868 junior high school students (15%).

In response to the question on "smokers in the family", 3286 (55%) responded "yes". Among these students, 2365 (72%) said their fathers smoke, 1012 (31%) said their mothers smoke and 631 reported that (19%) both parents smoke.

In response to the question on "conversation about cigarettes with the family", 3452 (58%) responded "yes", while 2522 (42%) responded "no".

In response to the question on "intention to speak about SPEP with the family", 3702 (62%) said "yes", while 2272 (38%) said "no".

3.2. Improvement in Awareness of and Attitudes toward Smoking: Link to Attributes, Smokers in the Family, and Conversation with the Family

As shown in Table 2, there was significant difference between school types ($p < 0.042$) compared to all the other items ($p < 0.001$) in the (1) "intention not to smoke as adult".

Table 2. Relationship between "Intention not to smoke cigarettes as adults" and "Intention to refuse cigarettes when offered" and attributes, smokers in the family, and conversation with the family.

	Items		Good continuation		Improve		No improve		χ^2	p
			n	%	n	%	n	%		
			ARV		ARV		ARV			
1	Intention not to smoke cigarettes as adults									
	Gender	Male	1556	52.5%	516	17.4%	891	30.1%	106.722	<0.001
			−9.8		2.3		9.2			
		Female	1956	65.0%	458	15.2%	597	19.8%		
			9.8		−2.3		−9.2			
	Classification	Elementary school	3033	59.4%	812	15.9%	1261	24.7%	6.343	0.042
			2.3		−2.0		−0.9			
		Junior high school	479	55.2%	162	18.7%	227	26.2%		
			−2.3		2.0		0.9			
	Conversation about cigarettes with the family	Yes	2111	61.2%	546	15.8%	795	23.0%	20.545	<0.001
			4.3		−1.2		−3.9			
		No	1401	55.6%	428	17.0%	693	27.5%		
			−4.3		1.2		3.9			
	Intention to speak about SPEP with family	Yes	2376	64.2%	661	17.9%	665	18.0%	251.009	<0.001
			10.8		4.1		−15.8			
		No	1136	50.0%	313	13.8%	823	36.2%		
			−10.8		−4.1		15.8			

Continued

	Smoker in family	No	1778	66.1%	375	14.0%	535	19.9%	110.738	<0.001
			10.4		−4.5		−8.1			
		Yes	1734	52.8%	599	18.2%	953	29.0%		
			−10.4		4.5		8.1			
		Father	1212	51.2%	441	18.6%	712	30.1%	93.509	<0.001
			−9.6		4.0		7.5			
		Mother	437	43.2%	214	21.1%	361	35.7%	124.676	<0.001
			−11.1		4.6		8.7			
		Parents	264	41.8%	137	21.7%	230	36.5%	84.867	<0.001
			−9.1		3.9		7.1			
2	Intention to refuse cigarettes when offered									
	Gender	Male	1768	59.7%	499	16.8%	696	23.5%	44.882	<0.001
			−6.0		1.1		6.2			
		Female	2022	67.2%	476	15.8%	513	17.0%		
			6.0		−1.1		−6.2			
	Classification	Elementary school	3262	63.9%	822	16.1%	1022	20.0%	3.010	0.222
			1.7		−1.1		−1.0			
		Junior high school	528	60.8%	153	17.6%	187	21.5%		
			−1.7		1.1		1.0			
	Conversation	Yes	2299	66.6%	509	14.7%	644	18.7%	35.399	<0.001
	about cigarettes		5.9		−3.9		−3.6			
	with the family	No	1491	59.1%	466	18.5%	565	22.4%		
			−5.9		3.9		3.6			
	Intention to speak	Yes	2596	70.1%	613	16.6%	493	13.3%	299.223	<0.001
	about SPEP		13.7		0.6		−17.0			
	with family	No	1194	52.6%	362	15.9%	716	31.5%		
			−13.7		−.6		17.0			
	Smoker in family	No	1782	66.3%	441	16.4%	465	17.3%	27.144	<0.001
			4.1		0.2		−5.1			
		Yes	2008	61.1%	534	16.3%	744	22.6%		
			−4.1		−0.2		5.1			
		Father	1406	59.5%	402	17.0%	557	23.6%	32.176	<0.001
			−5.2		1.1		5.2			
		Mother	580	57.3%	160	15.8%	272	26.9%	33.952	<0.001
			−4.4		−0.5		5.8			
		Parents	357	56.6%	104	16.5%	170	26.9%	20.918	<0.001
			−3.8		0.1		4.4			

The relationships were analyzed using the Pearson chi-square test, adjusted residual analysis. ARV: adjusted residual value. For "*Smoker in family*" shown in italics (*Father, Mother, Parents*), it indicates attributes of those who answered "Yes". These values were separately analyzed each Pearson chi-square test values and its adjusted residuals.

Looking at (2) "intention to refuse cigarettes when offered", 1022 (20%) elementary school children and 187 (22%) of junior high school students showed no improvement; thus, there was no significant difference between the two age groups. There was, however, significant difference in all the other items ($p < 0.001$).

As shown in Table 3, there was no significant difference in school types with regard to (1) "attitude of staying away from smokers": 2019 (40%) of elementary school students showed no improvement while 326 (38%) of junior high school students showed no improvement. There was significant difference in "conversation about cigarettes with the family" ($p < 0.002$) and in other items ($p < 0.001$).

Table 3. Relationship between "Attitude of staying away from smokers" and "Desire that their family will not smoke" and attributes, smokers in the family, and conversation with the family.

	Items		Good continuation		Improve		No improve		χ^2	p
			n	%	n	%	n	%		
			ARV		ARV		ARV			
1	Attitude of staying away from smokers									
	Gender	Male	1046	35.3%	670	22.6%	1247	42.1%	19.925	<0.001
			−3.1		−1.6		4.4			
		Female	1178	39.1%	735	24.4%	1098	36.5%		
			3.1		1.6		−4.4			
	Classification	Elementary school	1900	37.2%	1187	23.2%	2019	39.5%	1.847	0.397
			−0.1		−1.2		1.1			
		Junior high school	324	37.3%	218	25.1%	326	37.6%		
			0.1		1.2		−1.1			
	Conversation	Yes	1344	38.9%	811	23.5%	1297	37.6%	12.281	0.002
	about cigarettes		3.2		−0.1		−3.1			
	with the family	No	880	34.9%	594	23.6%	1048	41.6%		
			−3.2		0.1		3.1			
	Intention to speak	Yes	1574	42.5%	962	26.0%	1166	31.5%	247.565	<0.001
	about SPEP		10.8		5.7		−15.7			
	with family	No	650	28.6%	443	19.5%	1179	51.9%		
			−10.8		−5.7		15.7			
	Smoker in family	No	1141	42.4%	622	23.1%	925	34.4%	65.244	<0.001
			7.5		−0.6		−6.9			
		Yes	1083	33.0%	783	23.8%	1420	43.2%		
			−7.5		0.6		6.9			

Continued

	Father	755	31.9%	558	23.6%	1052	44.5%	56.859	<0.001
		−6.9		.1		6.7			
	Mother	321	31.7%	221	21.8%	470	46.4%	27.437	<0.001
		−4.0		−1.4		5.1			
	Parents	204	32.3%	135	21.4%	292	46.3%	14.764	0.001
		−2.7		−1.3		3.8			
2 Desire that their family will not smoke									
Gender	Male	1403	47.4%	576	19.4%	984	33.2%	29.218	<0.001
		−3.6		−1.7		5.4			
	Female	1565	52.0%	639	21.2%	807	26.8%		
		3.6		1.7		−5.4			
Classification	Elementary school	2541	49.8%	1027	20.1%	1538	30.1%	1.155	0.561
		0.3		−1.0		0.6			
	Junior high school	427	49.2%	188	21.7%	253	29.1%		
		−0.3		1.0		−0.6			
Conversation	Yes	1736	50.3%	721	20.9%	995	28.8%	5.462	0.065
about cigarettes		1.1		1.2		−2.3			
with the family	No	1232	48.9%	494	19.6%	796	31.6%		
		−1.1		−1.2		2.3			
Intention to speak	Yes	2017	54.5%	834	22.5%	851	23.0%	226.889	<0.001
about SPEP		9.5		5.4		−15.1			
with family	No	951	41.9%	381	16.8%	940	41.4%		
		−9.5		−5.4		15.1			
Smoker in family	No	1889	70.3%	362	13.5%	437	16.3%	837.519	<0.001
		28.8		−11.9		−20.9			
	Yes	1079	32.8%	853	26.0%	1354	41.2%		
		−28.8		11.9		20.9			
	Father	740	31.3%	609	25.8%	1016	43.0%	542.940	<0.001
		−23.0		8.4		17.7			
	Mother	282	27.9%	246	24.3%	484	47.8%	255.599	<0.001
		−15.2		3.4		13.6			
	Parents	170	26.9%	150	23.8%	311	49.3%	165.248	<0.001
		−12.1		2.3		11.2			

The relationships were analyzed using the Pearson chi-square test, adjusted residual analysis. ARV: adjusted residual value. For "Smoker in family" shown in italics (Father, Mother, Parents), it indicates attributes of those who answered "Yes". These values were separately analyzed each Pearson chi-square test values and its adjusted residuals.

In response to (2) "desire that their family wouldn't smoke", there was no significant difference in school types: 1538 (30%) of elementary school students showed no improvement, while 253 (29%) junior high school students showed no improvement. In response to "conversation about cigarettes with the family", 995 (29%) said "yes", while 796 (32%) said "no", suggesting no significant difference; however, there was significant difference in other items ($p < 0.001$).

The ratio of groups showing no improvement is presented below.

Comparing awareness of and attitudes toward smoking before and after according to sex showed that 891 (30%) of male students showed no improvement in "intention not to smoke as adult" while 597 (20%) female students showed no improvement.

For "intention to refuse cigarettes when offered", 696 (24%) of male students and 513 (17%) of female students did not show improvement.

For "attitude of staying away from smokers", 1247 (42%) male students and 1,098 (37%) female students did not show improvement.

For "desire that their family will not smoke", 984 (33%) male students and 807 (27%) female students showed no improvement. In all questions, the ratio of male students without improvement was higher than that of females.

As for school types, in response to the question of "intention not to smoke as adults", 1261 (25%) elementary school students and 227 (26%) junior high school students showed no improvement.

With regard to changes in awareness of and attitude toward smoking based on smokers in the family, in response to the question of "intention not to smoke as adults", 535 (20%) of those without a smoker in the family showed no improvement, while 712 (30%) of those whose father smokes showed no improvement, and 361 (36%) of those whose mother smokes showed no improvement. In households where both parents smoke, 230 (37%) showed no improvement.

For "intention to refuse cigarettes when offered", 465 (17%) of those without smokers in the family showed no improvement, 557 (24%) of those whose father smokes showed no improvement, 272 (27%) of those whose mother smokes showed no improvement, and 170 (27%) of those with both parents smoking showed no improvement.

For "intention to stay away from smokers", 925 (34%) had no smoker in the family, 1052 (45%) had a father smoking, 470 (46%) had a mother smoking, and 292 (46%) had both parents smoking.

For "desire that their family will not smoke", 437 (16%) of those without smokers in the family showed no improvement, while 1016 (43%) of those whose father smokes showed no improvement, 484 (48%) of those whose mother smokes showed no improvement, and 311 (49%) of those with both parents smoking showed no improvement.

As for awareness of and attitude toward smoking, assessed in the question of "conversation about cigarettes with the family", students who did not show any improvement in their intention not to smoke as adults included 693 (28%) who

did not have conversation with the family and 795 (23%) who did.

In the group who did have conversation with their family, 644 (19%) did not show improvement in "intention to refuse cigarettes when offered", while 565 (22%) of those who did not have conversation showed no improvement. In the group who did have conversation with the family, 1297 (38%) showed no improvement in "attitude of staying away from smokers", while 1048 (42%) of those who did not have conversation showed no improvement.

For changes in awareness of cigarettes, assessed by the question "intention to talk about SPEP with the family", 665 (18%) of students who intended to speak with their family showed no improvement in the intention not to smoke as adults, while 823 (36%) who did not intend to speak with their family showed no improvement.

Among those students who intended to speak about the SPEP with their family, 493 (13%) did not show improvement in "intention to refuse cigarettes when offered", com-pared to 716 (32%) students who did not demonstrate intention and showed no improvement.

In the group of students who did intend to speak with their family, 1166 (32%) showed no improvement in "attitude of staying away from smokers", while 1179 (52%) of those who did not demonstrate intention showed no improvement. Among those in-tending to speak with their family, 851 (23%) showed no improvement in the question "desire that their family will not smoke", while 940 (41%) of those who did not demonstrate intention showed no improvement.

4. Discussion

In all items for which significant difference was noted in the chi-squared test, the adjusted residual value (ARV) was above 2.58 and was deemed significant, with a significance level of 1%. This survey showed that SPEP improve their thinking of smoking. In this study, it focused on non-improvement factors in order to obtain further effects of SPEP, below.

The short-term effect of health education is said to be more apparent in female students than in male students [20], and age is also seen to make a difference in educational impact [9]. Furthermore, in previous surveys [21] [22] [23] [24] [25], it has been reported that the family smoking environment may impact the initial and future smoking habits of children.

In all items for which significant difference was noted in the chi-squared test, the adjusted residual value (ARV) was above 2.58 and was deemed significant, with a significance level of 1%.

The ARV for no improvement in "intention not to smoke as adults" was 9.2 for males and −9.2 for females. Therefore, the intention not to smoke as adults is unlikely to improve in males, but likely to improve for females.

It has been reported that being male is a risk factor for starting to smoke [26]; our study thus confirmed that there is sex-based difference in the effects of the

SPEP.

It has been pointed out that the smoking rate is higher in children whose family smokes [14] [15]. The ARV of "no improvement" with regard to smokers in the family was −8.1 for those without smokers, 7.5 for those whose fathers smoke, 8.7 for those whose mothers smoke, and 7.1 for those with both parents smoking. Therefore, if there is a smoker in the family, it is difficult to improve. In particular, the 36% of students with mothers who smoke did not improve; our result was thus similar to a report concluding that children with mothers who smoke have higher rate of smoking [25].

The ARV of students who did not converse with their family about smoking and showed no improvement was 3.6, and the ratio of no improvement in the intention not to smoke as adult was high.

It has been reported that, when there is limited conversation with the family and when the relationship with the family is poor, children are more likely to smoke [24] [26]. Those who did not talk to their family about what they learned from the SPEP had an ARV of 15.8 and did not show improvement, showing that it is difficult to improve with the SPEP in these circumstances. It was therefore assumed that the child's relationship with their family affects the effectiveness of the SPEP.

Compared to girls, boys are less likely to believe that smoking is 'definitely' bad for health, and express lower non-smoking intentions and a lower capacity to refuse cigarettes [27].

In the present survey, about 60% of male students and 70% of female students demonstrated a strong intention to refuse cigarettes when offered before the intervention. The ARVs of male students and female students who did not show improvement were 6.2 and −6.2, showing that male students are less likely to improve.

The ARV of those without a smoker in the family who showed no improvement was −5.1. The ARV was 5.2 for those whose fathers smoke, 5.8 for those whose mothers smoke, and 4.4 if both parents smoke. It was considered that difficult to improve if there is a smoker in the family, especially if the mother has a smoking habit.

The ARV of those who had no intention to speak about the SPEP with their family but do now show improvement in refusing cigarettes was high: 17.0. The intention to speak about the SPEP with the family is strongly linked to the intention to refuse cigarettes when offered. Students who had difficulties speaking about the SPEP with the family found it more difficult to refuse cigarettes when offered.

The attitude of staying away from smokers is important in preventing harm from secondhand smoke. The ARV of male students was 4.4, and it is more difficult for male students to develop an attitude of staying away from smokers as a result of the SPEP.

The ARV of students whose fathers smoke and showed no improvement was 6.7, while it was 5.1 for those whose mothers smoke. It was 3.8 if both parents

smoked. On the other hand, if there is not a smoker in the family, the ARV was −6.9. If there are one or more smoker(s) in the family, the tendency to improve the intention to stay away from smoker(s) is poor. Particularly when the father smoke, 45% showed no improvement, which suggests it is difficult to develop an awareness that one must stay away from smokers in this situation. The ARV of those who had no intention to speak about the SPEP with their family and showed no improvement was 15.7, demonstrating a link between intention to refuse cigarettes when offered and the intention to speak to the family about what they learned at school [28].

The desire for their family not to smoke was already high for about 50% of both male and female students. Nonetheless, the ARV of the group of male students who showed no improvement was 5.4, demonstrating that about 30% of male students did not change their desire about their family smoking habits as a result of the SPEP.

With regard to family smoking, the ARV of the group that did not show improvement in their desire for their family not to smoke was 17.7 for those whose fathers smoke, 13.6 for those whose mothers smoke, and 11.2 when both parents smoke. When there is one or more smokers in the family, the SPEP clearly does not significantly improve the desire for their family not to smoke. This indicates that when fathers smoke, children are less likely to show a desire for their family not to smoke.

As a result, the following factors were difficult to improve through the SPEP intervention for "male students", "junior high school students", and "children whose parents smoke": "intention not to smoke as adults", "intention to refuse cigarettes when offered", "attitude of staying away from smokers", and "desire that their family will not smoke".

The findings of this study showed some factors influenced the short term educational effect. Further study, it is necessary to clarify long term educational effect and factors influencing it.

5. Conclusion

Findings showed that having smokers in the family affects not only children's intention and attitude toward smoking, but also the effectiveness of smoking prevention education. Especially, it was difficult to improve children's "intention not to smoke as adults", "intention to refuse cigarettes when offered", "attitude of staying away from smokers", and "desire that their family will not smoke". Therefore, it was thought that SPEP to be less effective, in mentioned situation, in improving awareness of and attitudes toward smoking among elementary and junior high school students.

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