Indian Journal of Science and Technology, Vol 9 S(1), DOI: 10.17485/ijst/2016/v9iS1/109869, December 2016
ISSN (Print) : 0974-6846
ISSN (Online) : 0974-5645

# Smoking-Related Knowledge, Attitude, Self-Esteem and Social Support among Children and Adolescents in Gyeonggi-do, Korea

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## Abstract

**Background/Objectives**: Smoking begins with curiosity and affects the next quantity. This study aims to examine the smoking-related behaviors of children and adolescents as influenced by knowledge, attitude, self-esteem and social support. **Methods/Statistical Analysis**: This study was based on data acquired from the elementary to high schools in Gyeonggi-do, Korea, which was conducted from December 1 to 31, 2015. We conducted to analysis for 6,112, excepting who did not respond to a question. We analyzed chi-square test, t-test and regression to assess the association between smokers and non-smokers and compare with smoking-related knowledge, attitude, self-esteem and social support. **Findings**: Our study found that 10.9% were smokers among students responded in the survey items. Also, male students smoked more than female students and high school students than elementary school students or middle school students. Smoking-related behavior was associated with smoking-related knowledge, attitude and self-esteem and social support. Smokers suffered from stress higher than non-smokers. On the other hand, smokers had subjective health and happiness lower than non-smokers. There were lots of non-smokers than smokers in the survey items. In addition, there is a close relevance between stress, subjective health and happiness statistically. **Improvements/Applications**: The government set up a non-smoking policy, such smoking prevention program and event may focus on modifying attitudes towards smoking and providing a cigarette-free environment near school.

**Keywords:** Attitude, Knowledge, Self-Esteem, Smoking, Social Support

## 1. Introduction

Tobacco increases the risk of disease such as pulmonary disease, cancer, cardiovascular diseases[1]. Also, long-term smoking is known to be harmful to health factors[2]. According to Korean Youth Health Risk Behavior Web-based Survey data, youth smoking rate in 2015 were compared to the previous year, boys and girls decreased (11.9% boys and 3.2% girls)[3]. This is likely to reduce smoking rates suppressed due to social recognition of youth smoking, such as rising of tobacco price, the strengthening of non-smoking education. However, smoking in adulthood generally begins in adolescence[4]. Therefore, it should hold the right to correct children or adolescent health and lifestyle habits. In addition, smoking of children and adolescents is associated with variables factors, including demographic characteristics and health behaviors as well as interpersonal problems and physical environmental factors[5], the effort to identify factors that can inhibit smoking and moving into action is necessary.

Smoking in adolescence is known as the time of determining the amount of smoking in adult life[6], which had a tendency to try to smoke in order to get along with friends and curious[7]. Youth smoking-related research

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carried out in Korea has been reported consistently from the 1990s to the present. However, there was no research survey of all classes from elementary to high school research is also a lack of social support and self-esteem on smoking. In other words, there is a need in the critical starting point for smoking in adolescents has decreased, as compared to the present study examined the findings of past and current knowledge, attitudes, self-esteem and social support insight regarding whether any association with smoking. As early start smoking because smoking is increasing and causing serious damage to health research and ongoing studies of smoking in children and adolescents can be utilized as a very important indicator for the health of young people.

Therefore, this study aims to examine the smoking-related behaviors of children and adolescents, as influenced by smoking-related knowledge, attitude, self-esteem and social support. Specific objectives of this study are as follows.

First, identify the characteristics of smoking-related subjects.

Second, determine the level of knowledge and attitudes, social support and self-esteem on smoking.

Third, determine the level of knowledge, attitudes levels and the relevance of self-esteem and social support for smoking and tobacco use.

# 2. Materials and Methods

## 2.1 Study Design

This study was based on data acquired from the elementary, middle and high schools in Gyeonggi-do, Korea, which was conducted in 2015. All of participants, 7,029 students were directly asked question by web survey.

## 2.2 Selection Process of the Subject

We conducted a statistical analysis for 6,112, excepting 54 who did not respond to a question for class (elementary, middle and high schools) and 863 for gender (male and female) among 7,029 students.

## 2.3 Instruments

In this study, outcome variable, student responded 'yes' to the question, "Have you ever had smoking experience?" and independent variables composed knowledge (yes or no), attitude (5 point scale), self-esteem and social support (5 point scale).

The smoking-related knowledge score was based on 10 items. For each item, a correct response was given a score of 1 and an incorrect, not sure or missing response was scored as 0 (Cronbach a = 0.894). The attitude score was based on 10 items. For each item, a response was given a score 5 (Cronbach a = 0.716). The self-esteem and social support score was based on 10 items. For each item, a response was given a score 5 (Cronbach a = 0.952).

The questionnaire of smoking-related is described in Table 1.

## 2.4 Data Analysis

All data were analysis using SPSS statistics version 21.0. Simple frequencies were calculated for question and expressed in percentage. We used data from 6,112 students and analyzed chi-square test (demographic characteristics), t-test and logistic regression to assess the association between smokers and non-smokers and compare smoking-related knowledge, attitude, self-esteem and social support.

# 3. Results

## 3.1 General Characteristics of the Subjects

Demographic characteristics analysis is the shown in Table 2. Data were available for 6,112 students and the distributions of class consisted of 37.5% of elementary

**Table 1.** Questionnaire of smoking-related knowledge, attitude, self-esteem and social support

| Categories | Questionnaire |
|---|---|
| Knowledge | K1: I think mild cigarettes effect the lower risk of lung cancer or other diseases.<br>K2: I think it affects higher risk of cancer, when I smoke with drinking.<br>K3: I think smoking releases my stress.<br>K4: To getting dizzy is sign of hallucination by smoking.<br>K5: Smoking helps to lose weight.<br>K6: Sucking smoking is harmful.<br>K7: Smoking is highly addictive at an early age.<br>K8: It is allowed to smoke in the internet cafe, comic book store and billiard hall.<br>K9: Electronic cigarettes are ciggy which do not allowed to youth.<br>K10: Secondhand smoking is a big health hazard. |

| | |
|---|---|
| Attitude | A1: Although people thought cigarettes are bad for health, I think it is not true.<br>A2: I think it is beneficial to health to smoke out of curiosity once or twice.<br>A3: I want to smoke when TV/movie or magazine show a smoking scene or picture.<br>A4: I think I seek mature by smoking.<br>A5: I think smoking friend looks really cool.<br>A6: I think smoking should be illegalized in public place where may people pass on.<br>A7: I think smoking of youth should be illegalized by the law or rule.<br>A8: I think smoking prevention education should be performed since elementary school.<br>A9: I think I can quit smoking easily, though I am smoking.<br>A10: I am interested in smoking in the future. |
| Self-esteem and Social support | S1: I think my parents and I understand each other.<br>S2: I think I often have a talk with my parents.<br>S3: I think I generally get along with schoolfellows.<br>S4: I have a friend who sincerely cares about me in a school.<br>S5: I have a teacher to find a solution to my problem.<br>S6: I think I generally get along with teachers.<br>S7: I think I have many strengths.<br>S8: I think I am valuable as others at least.<br>S9: I think I can achieve the goal when I set up it.<br>S10: I think I can solve unexpected matters without difficulty, when those come up. |

**Table 2.** Demographic characteristics of participants (N = 6,112)

| Variables | Smokers (n = 669) | Non-smokers (n = 5,443) | Chi-square (p-value) |
|---|---|---|---|
| Sex<br>Boys<br>Girls | <br>514 (16.4)<br>155 (5.2) | <br>2,617 (83.6)<br>2,826 (94.8) | <br>197.11<br>(<0.001) |
| Grade<br>ESS<br>MSS<br>HSS | <br>26 (1.1)<br>204 (11.0)<br>439 (22.4) | <br>2,268 (98.9)<br>1,657 (89.0)<br>1,518 (77.6) | <br>491.45<br>(<0.001) |
| Smoking cessation<br>Yes<br>No | <br>616 (10.6)<br>51 (16.9) | <br>5,182 (89.4)<br>251 (83.1) | <br>11.56<br>(<0.001) |

*Abbreviation: Elementary School Students, ESS; Middle School Students, MSS; High School Students, HSS

school children, 30.4% middle school students and 32.0% of high school students (chi-square = 197.11, $p < 0.001$). Among respondents to survey items, smokers and non-smokers were 699 and 5,443 individually. 16.4% of male students and 5.2% of female students responded that they smoked cigarettes. ESS, MSS and HSS were individually 1.1%, 11.0% and 22.4% (chi-square = 491.45, $p < 0.001$). In addition, 10.6% of students had anti-smoking education for the last 12 months (chi-square = 11.56, $p < 0.001$). There was a correlation in gender, class and anti-smoking education depending on smoking status.

**Table 3.** Comparison of smoking-related knowledge between smokers and non-smokers

| Variables | Smokers (n = 669) | Non-smokers (n = 5,443) | Chi-square or t | p-value |
|---|---|---|---|---|
| | N (%) | N (%) | | |
| Total score K (Mean ± SD) | 4.94 ± 3.18 | 5.11 ± 2.44 | -13.77 | 0.169 |
| K1 | 225 (33.7) | 1,578 (29.0) | 20.30 | < 0.001 |
| K2 | 421 (63.1) | 4,134 (76.1) | 55.63 | < 0.001 |
| K3 | 230 (34.5) | 1,159 (21.3) | 62.27 | < 0.001 |
| K4 | 328 (49.2) | 2,385 (43.9) | 27.23 | < 0.001 |
| K5 | 124 (18.6) | 510 (9.4) | 54.04 | < 0.001 |
| K6 | 441 (66.1) | 4,013 (73.9) | 21.45 | < 0.001 |
| K7 | 442 (66.3) | 3,985 (73.3) | 15.76 | < 0.001 |
| K8 | 151 (22.6) | 991 (18.2) | 8.87 | 0.012 |
| K9 | 452 (67.8) | 4,423 (81.4) | 79.47 | < 0.001 |
| K10 | 489 (73.3) | 4,648 (85.6) | 67.85 | < 0.001 |

## 3.2 Smoking-related Knowledge

Results of analysis for difference of smoking-related knowledge of smoker and non-smokers are the shown in Table 3. In total score for smoking-related knowledge, smoker and non-smoker were 4.94 (±3.18) and 5.11 (±2.44) respectively. Each percentage of correct answers in question K1, K2, K3, K4, K5, K6, K7, K8, K9 and K10 were 33.7%, 63.1%, 34.5%, 49.2%, 18.6%, 66.1%, 66.3%, 22.6%, 67.8% and 73.3%.

### 3.3 Smoking-related Attitude

Results of analysis for difference of smoking attitude of smoker and non-smokers are the shown in Table 4. Total attitude score of smokers was 25.00 (±8.14) and non-smokers was 22.25 (±6.02). Attitudes of smokers which I think I seem mature by smoking and I think smoking friend looks really cool were given the lowest score with 1.82 (±1.10) and attitude which I think smoking should be illegalized in publics places where many people pass on was given the highest score with 3.51 (±1.48). Although this had two missing values, lots of non-smokers responded the survey items than smokers.

### 3.4 Smoking-related Self-esteem and Social Support

Results of analysis for difference of self-esteem and social support of smokers and non-smokers are the shown in Table 5. For self-esteem and social support, total score of smokers was 29.96 (±7.48) and non-smokers was 33.21 (±6.01). For self-esteem and social support, a question which I have a teacher to find a solution to my problem was given the lowest score with 2.91 (±0.91) and a question which I generally get along with school fellows was given the highest score with 3.13 (±0.82) for self-esteem and social support.

### 3.5 Smoking-related Stress, Subjective Health Status and Happiness

Total scores of stress, health and happiness were 3.11 (±1.11), 3.42 (±1.01) and 3.40 (±0.99) respectively in smokers' response. There was a close relevance between stress, subjective health and happiness statistically as shown in Table 6.

**Table 4.** Comparison of smoking-related attitude between smokers and non-smokers

| Variables | Smokers (n = 667) | Non-smokers (n = 5,443) | t | p-value |
|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | | |
| Total score A | 25.00 ± 8.14 | 22.25 ± 6.02 | 8.43 | <0.001 |
| A1 | 1.93 ± 1.20 | 1.31 ± 0.88 | 12.81 | <0.001 |
| A2 | 2.22 ± 1.21 | 1.32 ± 0.79 | 18.70 | <0.001 |
| A3 | 2.17 ± 1.21 | 1.27 ± 0.74 | 18.86 | <0.001 |
| A4 | 1.82 ± 1.10 | 1.24 ± 0.70 | 13.32 | <0.001 |
| A5 | 1.82 ± 1.14 | 1.23 ± 0.71 | 13.00 | <0.001 |
| A6 | 3.51 ± 1.48 | 4.12 ± 1.52 | -9.83 | <0.001 |
| A7 | 3.16 ± 1.47 | 3.98 ± 1.55 | -13.52 | <0.001 |
| A8 | 3.28 ± 1.47 | 3.88 ± 1.60 | -9.82 | <0.001 |
| A9 | 2.86 ± 1.43 | 2.56 ± 1.57 | 5.08 | <0.001 |
| A10 | 2.24 ± 1.19 | 1.34 ± 0.90 | 18.73 | <0.001 |

*Missing value (n = 2)

**Table 5.** Comparison of smoking-related self-esteem and social support between smokers and non-smokers

| Variables | Smokers (n = 669) | Non-smokers (n = 5,443) | t | p-value |
|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | | |
| Total score S | 29.96 ± 7.48 | 33.21 ± 6.01 | −10.80 | <0.001 |
| S1 | 2.98 ± 0.87 | 3.42 ± 0.69 | −14.98 | <0.001 |
| S2 | 3.00 ± 0.85 | 3.43 ± 0.70 | −14.44 | <0.001 |
| S3 | 3.13 ± 0.82 | 3.44 ± 0.66 | −11.20 | <0.001 |
| S4 | 3.08 ± 0.83 | 3.42 ± 0.71 | −11.51 | <0.001 |
| S5 | 2.91 ± 0.91 | 3.20 ± 0.71 | −8.52 | <0.001 |
| S6 | 2.97 ± 0.82 | 3.30 ± 0.71 | −9.91 | <0.001 |
| S7 | 2.93 ± 0.85 | 3.17 ± 0.80 | −7.26 | <0.001 |
| S8 | 2.99 ± 0.82 | 3.32 ± 0.73 | −9.74 | <0.001 |
| S9 | 2.99 ± 0.83 | 3.27 ± 0.73 | −8.49 | <0.001 |
| S10 | 2.99 ± 0.81 | 3.25 ± 0.73 | −7.98 | <0.001 |

**Table 6.** Smoking-related stress, subjective health status and happiness

| Variables | Smokers (n = 669) | Non-smokers (n = 5,443) | t | p-value |
|---|---|---|---|---|
| | Mean ± SD | Mean ± SD | | |
| Stress | 3.11 ± 1.11 | 2.94 ± 1.01 | 3.85 | <0.001 |
| Health state | 3.42 ± 1.01 | 3.70 ± 0.96 | −6.96 | <0.001 |
| Happiness | 3.40 ± 0.99 | 3.76 ± 0.96 | −9.25 | <0.001 |

### 3.6 The Effect on Smoking Depending on Smoking-related Knowledge, Attitude, Self-esteem and Social Support

The effects on smoking depending on smoking-related knowledge, attitude, self-esteem and social support of male students were shown in Table 7. Smoking of middle and high-school boys was 11.09 and 28.08 times higher than elementary-school boys. Male students who did not have anti-smoking education were 1.37 times higher than others who had the relevant education. Smoking-related knowledge was not considered statistically in this study. Attitude of smokers was 1.06 times higher, and self-esteem and social support were 0.94 times lower in the effects on smoking.

The effects on smoking depending on smoking-related knowledge, attitude, self-esteem and social support

**Table 7.** The effects on smoking depending on smoking-related knowledge, attitude, self-esteem and social support of male students

| Variables Category | | B | Relative Ratio | 95% CI |
|---|---|---|---|---|
| Grade | EMS | | 1.00 | |
| | MMS | 2.41 | 11.09 | 6.91 – 17.81 |
| | HSS | 3.34 | 28.08 | 17.71 – 44.54 |
| Smoking cessation | Yes | | 1.00 | |
| | No | 0.31 | 1.37 | 0.95 – 1.97 |
| Knowledge | Low | | 1.00 | |
| | High | 0.01 | 1.00 | 0.97 – 1.04 |
| Attitude | High | | 1.00 | |
| | Low | 0.06 | 1.06 | 1.05 – 1.08 |
| Self-esteem and social support | Low | | 1.00 | |
| | High | –0.06 | 0.94 | 0.93 – 0.95 |

*Abbreviation: Elementary School Students, ESS; Middle School Students, MSS; High School Students, HSS

**Table 8.** The effects on smoking depending on smoking-related knowledge, attitude, self-esteem and social support of female students

| Variables Category | | B | Relative Ratio | 95% CI |
|---|---|---|---|---|
| Grade | EMS | | 1.00 | |
| | MMS | 2.29 | 9.91 | 4.20 – 23.37 |
| | HSS | 3.16 | 23.54 | 10.29 – 53.85 |
| Smoking cessation | Yes | | 1.00 | |
| | No | –0.75 | 2.12 | 1.11 – 4.03 |
| Knowledge | Low | | 1.00 | |
| | High | –0.06 | 0.94 | 0.88 – 1.01 |
| Attitude | High | | 1.00 | |
| | Low | 0.07 | 1.07 | 1.04 – 1.10 |
| Self-esteem and social support | Low | | 1.00 | |
| | High | –0.09 | 0.92 | 0.89 – 0.94 |

*Abbreviation: Elementary School Students, ESS; Middle School Students, MSS; High School Students, HSS

of female students were shown in Table 8. Smoking of middle and high-school girls was 9.91 and 23.54 times higher than elementary-school girls. Female students who did not have anti-smoking education were 2.12 times higher than others who had the relevant education. Smoking-related knowledge was not considered statistically in this study. Attitude of smokers was 1.07 times higher and self-esteem and social support were 0.92 times lower in the effects on smoking.

## 4. Discussion

Our study found that 10.9% were smokers among students responded in the survey items. Male smoking rate was 16.4% were female smoking rate is 5.2%. Compared to Korean Youth Health Risk Behavior Web-based Survey results show that high rates of smoking in this study. The reason for this is due to differences in the population for the study, research of the present study seems to have been some bias because of it does not include the irradiation by assigning the samples in a hierarchical method. However, despite containing some of the elementary school students in the survey were higher than Youth Health Risk Behavior Web-based Survey it implies the need for urgent measures to support the new policy, Gyeonggi-do School smoking prevention projects.

Our study shows that smoking-related behavior was associated with smoking-related knowledge, attitude and self-esteem and social support. In addition, there was a close relevance between stress, subjective health and happiness statistically. Knowledge and attitudes about smoking have an important mediation role to regulate the behavior of smoking. Therefore, education is essential in order to carry out prevention activities and projects of the school units. In a study of[8], the results analysis of the behavior for smoking knowledge and attitude of elementary school students showed that the low knowledge and attitudes of smokers than non-smokers. In a study of[9], knowledge and attitude of middle school students were smoking correlations appeared, the higher the knowledge of smoking showed a good attitude to smoking. And[10], researching knowledge and attitudes towards smoking for high school students, smokers than non-smokers higher level of knowledge, attitudes low level of non-smokers than smokers. In this study, the level of knowledge was not statistically significant and showed the attitude of non-smokers than smokers with low levels statistically significantly.

The faster when started smoking, the greater the amount of smoking[11]. After all smoking in adolescence is to create potential factors threatening the health of adulthood[12]. As it was suggested in previous studies, smoking prevention and early intervention for children and adolescents to actively be made and seems to require a smoking prevention education, access to knowledge, attitudes, self-esteem and social support.

It is also necessary that efforts to children and adolescents smoking is because when one can be habit

forming when to start the knowledge, attitudes and awareness about the risks of smoking for smokers properly. To do this, knowledge and attitudes about smoking can be regarded as the first step in order to prevent smoking[13]. The best thing is never smoking at an early age. The government set up a non-smoking policy, but it should be changed for the environment and social atmosphere. Therefore, such smoking prevention program and event may focus on modifying attitudes towards smoking and providing a cigarette-free environment near school. To operate a preventative management continued to be carried out in stages. First, perform activities on smoking-related behaviors, attitudes and knowledge associated with smoking. Second, school-based smoking prevention and intervention to for policy approach identified and Third, it must do the effects of smoking prevention activities through the intervention to smoking -related activities.

## 5. Conclusion

Smoking status of youth was different in classes and it was related to stress, health and happiness index. Smoking status of male and female students was relevant to attitude, self-esteem and social support. Therefore, it is necessary to curb the smoking rates in students that the government develops and apply smoking prevention program to attitude, self-esteem and social support.

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## 7. Acknowledgment

The study was performed with the financial support of Gyeonggi-do Provincial Office of Education.