

Attitudes and Behaviors Toward High Caffeine Intake Among Adolescents

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ABSTRACT

This study was conducted to identify the attitudes and behaviors of adolescents with a high caffeine intake in one region. The participants in this study were 13,484 male students and 14,408 female adolescents aged 11–18 years. Two-sample t-tests and F-tests were used for the data analysis. The results of this study showed that attitudes toward high caffeine intake among adolescents differed according to sex ($t=2.923$, $p=0.003$) and school ($p<0.001$). It was found that high caffeine intake was most acceptable in general high schools. In addition, 33.3% of those who had recently consumed more than once a week consumed high-caffeinated beverages. It is necessary to provide education on high-caffeine beverages, which can become addictive, along with smoking and drinking.

Keywords: adolescent, high caffeine intake, attitudes, behaviors

INTRODUCTION

Among adolescents, highly caffeinated drinks (energy drinks, coffee, etc.) are gaining popularity as they are known to be effective in reducing fatigue and increasing alertness [1]. In particular, students have a permissive attitude toward high-caffeine drinks because they have the effect of increasing concentration and short-term memorization skills for exam preparation while staying at school for a long time. There is a risk of overuse and addiction, because caffeine can be used freely without any restrictions on intake at school. Excessive caffeine intake through highly caffeinated beverages can cause various physical side effects such as heart palpitations, anxiety, agitation, headache, and nervousness [2-3]. There is a risk of drunk driving and death [4-5]. To prevent the side effects caused by uncontrolled high caffeine intake, basic research is needed to identify the actual conditions and attitudes of adolescents toward high caffeine intake and to prepare guidelines for its use.

This study aims to provide basic data for establishing youth addiction prevention policies in a local city. The specific study objectives were as follows.

1. To identify the attitudes towards high caffeine intake among adolescents
2. To identify the behaviors of adolescents on high caffeine intake

METHODS

Study design

This descriptive study investigated the high caffeine intake and behaviors of adolescents in one region of South Korea.

Participants and data

This data used part of the high-caffeine drink intake data from the public data of the 2021 Drinking Survey Study [6] conducted on adolescents in City A. Data from a total of 26,844 participants from 12 elementary schools, 171 middle schools, and 144 general high schools were used. Data collection was conducted using a self-reported online survey, and only students who voluntarily wanted to participate were surveyed.

Study instruments

1. 'High-caffeine beverage intake' attitude: rated on a 5-point scale (1: 'very acceptable', 2: 'somewhat acceptable', 3: 'moderately acceptable', 4: 'somewhat disagree', 5: 'strongly disagree'). A lower score indicates a more acceptable caffeine intake.
2. 'High-caffeine beverage intake' behavior: 'How often did you drink high-caffeine beverages in the past seven days?' 'one-two times/week', 'five-six times/week', 'everyday', 'twice daily', and 'three or more times a day' were surveyed.

RESULT

Attitudes toward high caffeine intake among adolescents

High caffeine intake differed depending on sex; high caffeine intake was acceptable in female students ($t=2.923$, $p=0.003$). In addition, in the analysis by schools, general high schools showed the lowest score, which can be considered acceptable ($p<0.001$)(Table1).

Table 1. Attitudes toward high caffeine intake

(N=28,256)						
Group		N	Mean	SD	t or F	p
Gender	Male students	13,848	2.85	1.458	2.923	0.003
	Female students	14,408	2.80	1.376		
School level	Elementary school ^a	1,775	4.33	0.984	1546.401 Scheffe test: a>b>d>c	<0.001
	Middle school ^b	14,123	3.06	1.368		
	General high school ^c	9,485	2.27	1.269		
	specialized vocational high school ^d	2,873	2.51	1.360		

Behaviors toward high caffeine intake among adolescents

As for the behavior of 'consumption of highly caffeinated beverages', 'not drinking in the last 7 days' accounted for 67.7%, and consuming 'more than once a week' was 33.3% (Table 2).

Table 2. Behaviors toward high caffeine intake

Variables	Gender n(%)		School level n(%)				Total n(%)
	Male students	Female students	Elementary school	Middle school	High school		
					General	Specialized vocational	
No eating	9,562 (69.0)	9,570 (66.4)	1,604 (90.4)	10,212 (72.3)	5,474 (57.7)	1,842 (64.1)	19,132 (67.7)
1-2 times/week	2,590 (18.7)	2,820 (19.6)	113 (6.4)	2,589 (18.3)	2,128 (22.4)	580 (20.2)	5,410 (19.1)
3-4 times/week	942 (6.8)	1,118 (7.8)	22 (1.2)	780 (5.5)	1,005 (10.6)	253 (8.8)	2,060 (7.3)
5-6 times/week	271 (2.0)	325 (2.3)	10 (0.6)	218 (1.5)	307 (3.2)	61 (2.1)	596 (2.1)
1 time/day	263 (1.9)	351 (2.4)	12 (0.7)	181 (1.3)	343 (3.6)	78 (2.7)	614 (2.2)
2 times/day	125 (0.9)	145 (1.0)	5 (0.3)	86 (0.6)	144 (1.5)	35 (1.2)	270 (1.0)
3 or more times/day	95 (0.7)	79 (0.5)	9 (0.5)	57 (0.4)	84 (0.9)	24 (0.8)	174 (0.6)

DISCUSSION

The results of this study showed that high caffeine intake was most acceptable in general high schools. Awareness of the side effects caused by high-caffeine drinks among adolescents is low, and adolescents are not well aware of the recommended intake standards [7]. Adolescents who consume highly caffeinated beverages are also more likely to use tobacco, alcohol, and illegal drugs [8]. It is necessary to identify high caffeine use among adolescents, reduce high caffeine use, and develop effective educational strategies to mitigate potential harm.

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