Factors associated with caffeine containing energy drink consumption among nursing students

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Purpose

- The purpose of this study was to identify factors associated with caffeine containing energy drink consumption which has been associated with existence of drinking experience and intention to re-consume in nursing students. .

Methods

1. Study design:
   - Cross-sectional study was conducted using self-report questionnaires.

2. Study participants:
   - 187 nursing students from freshmen to senior grade
   - Recruited participants from college of nursing of Y University in G provinces of Korea.

3. Data collection:
   - May to July in 2014

4. Measures:
   - Gender, school year, residence with family, cigarette smoking, alcohol drinking, perceived academic stress
   - For energy-drink users, asked the reasons why they intended to re-consume caffeine containing energy drinks
   - Depression (Beck's Depression Inventory)
   - Self-esteem (Rogenberg's Self-esteem Scale)
   - Adjustment to college (Baker and Siryk's Student Adjustment to College Questionnaire)

5. Data analysis:
   - Descriptive statistics, Logistic regression, *p* value <.05

Results

1. Of the 187 participants, 137 nursing students (73.2%) had experience to caffeine containing energy drink consumption and 50 nursing students (26.7%) had no such experience.

2. Statistically significant factors associated with experience of caffeine containing energy drink consumption were alcohol drinking (OR = 2.38, *p* = 0.032) and depression (OR = 4.49, *p* = 0.018).

3. Furthermore, 74 nursing students (54.0%) among the 137 ever-energy drink users intended to re-consume caffeine containing energy drinks.

4. Statistically significant factors associated with an intention to re-consume caffeine containing energy drinks were fatigue (OR = 2.61, p = 0.030), awaking from sleep (OR = 5.61, p = 0.001), and taste (OR = 7.11, p = 0.001).

Table 1. Characteristics of nursing students : never-energy drink user vs. ever-energy drink user (N = 187)

Characteristics	Total (N = 187)	Never-energy drink users (n = 50)	Ever-energy drink users (n = 137)
	n (%) or Mean ± SD (Range)	n (%) or Mean ± SD (Range)	n (%) or Mean ± SD (Range)
Gender			
Female	154 (82.4)	44 (88.0)	110 (80.3)
Male	33 (17.6)	6 (12.0)	27 (19.7)
School year			
Freshman	49 (26.2)	15 (30.0)	34 (24.8)
Sophomore	50 (26.7)	12 (24.0)	38 (27.7)
Junior	37 (19.8)	13 (26.0)	24 (17.5)
Senior	51 (27.3)	10 (20.0)	41 (29.9)
Residence with family			
Yes	19 (10.2)	6 (12.0)	13 (9.5)
No	168 (89.8)	44 (88.)	124 (90.5)
Cigarette smoking			
Non-smoker	181 (96.8)	50 (100.0)	131 (95.6)
Smoker	6 (3.2)	None	6 (4.4)
Alcohol drink			
Non-drinker	47 (25.1)	19 (38.0)	28 (20.4)
Drinker	140 (74.9)	31 (62.0)	109 (79.6)
Perceived academic stress			
No	75 (40.1)	28 (56.0)	47 (34.3)
Yes	112 (59.9)	22 (44.0)	90 (65.7)
Depression			
No	136 (72.7)	46 (92.0)	90 (65.7)
Yes	51 (27.3)	4 (8.0)	47 (34.3)
Self-esteem (Range: 25~100)	76.7 ± 12.8 (37.5~97.5)	79.7 ± 13.4 (37.5~97.5)	75.7 ± 12.5 (50.0~97.5)
Adjustment to college (Range: 67~335)	212.6 ± 19.5 (145~269)	220.1 ± 14.2 (190~256)	209.9 ± 20.4 (145~269)

Table 2. Logistic regression analysis: never-energy drink user vs. ever-energy drink user (N = 187)

Characteristics	Ever-energy drink users (vs. never-energy drink users) Odds ratio	P value	90% Confidence interval
Gender			
Female	Ref		
Male	1.64	0.384	0.64-4.18
School year			
Freshman	Ref		
Sophomore	0.65	0.444	0.25-1.65
Junior	0.43	0.133	0.17-1.08
Senior	1.21	0.742	0.47-3.09
Residence with family			
Yes	Ref		
No	1.65	0.418	0.60-4.53
Cigarette smoking			
Non-smoker	Ref		
Smoker	2.74	0.999	NA
Alcohol drink			
Non-drinker	Ref		
Drinker	2.38	0.032	1.23-4.64
Perceived academic stress			
No	Ref		
Yes	2.01	0.089	1.02-3.96
Depression			
No	Ref		
Yes	4.49	0.018	1.58-12.79
Self-esteem	1.01	0.598	0.98-1.04
Adjustment to college	0.98	0.097	0.96-1.00

Table 3. Characteristics of ever-energy drink user among nursing students: no intention to re-consumption vs. intention to re-consumption (N = 137)

Characteristics	Total (N = 137)	No intention to re-consumption (n = 63)	Intention to re-consumption (n = 74)
	n (%) or Mean ± SD (Range)	n (%) or Mean ± SD (Range)	n (%) or Mean ± SD (Range)
Gender			
Female	110 (80.3)	53 (84.1)	57 (77.0)
Male	27 (19.7)	10 (15.9)	17 (23.0)
School year			
Freshman	34 (24.8)	15 (23.8)	19 (25.7)
Sophomore	38 (27.7)	10 (15.9)	28 (37.8)
Junior	24 (17.5)	14 (22.2)	10 (13.5)
Senior	41 (29.9)	24 (38.1)	17 (23.0)
Residence with family			
Yes	13 (9.5)	5 (7.9)	8 (10.8)
No	124 (90.5)	58 (92.1)	66 (89.2)
Cigarette smoking			
Non-smoker	131 (95.6)	61 (96.8)	70 (94.6)
Smoker	6 (4.4)	2 (3.2)	4 (5.4)
Alcohol drink			
Non-drinker	28 (20.4)	17 (27.0)	11 (14.9)
Drinker	109 (79.6)	46 (73.0)	63 (85.1)
Perceived academic stress			
No	47 (34.3)	23 (36.5)	24 (32.4)
Yes	90 (65.7)	40 (63.5)	50 (67.6)
Depression			
No	90 (65.7)	40 (63.5)	50 (67.6)
Yes	47 (34.3)	23 (36.5)	24 (32.4)
Self-esteem (Range: 25~100)	75.7 ± 12.5 (50~97.5)	76.3 ± 12.1 (52.5~97.5)	75.2 ± 12.8 (50.0~97.5)
Adjustment to college (Range: 67~335)	209.9 ± 20.4 (145~269)	212.7 ± 18.9 (179~269)	207.5 ± 21.4 (145~269)
Reasons for re-consumption			
Good for fatigue			
No	74 (54.0)	39 (61.9)	35 (47.3)
Yes	63 (46.0)	24 (38.1)	39 (52.7)
Awake from sleep			
No	66 (48.2)	37 (58.7)	29 (39.2)
Yes	71 (51.8)	26 (41.3)	45 (60.8)
Good for taste			
No	94 (68.6)	51 (81.0)	43 (58.1)
Yes	43 (31.4)	12 (19.0)	31 (41.9)
Copycat to friends			
No	121 (88.3)	55 (87.3)	66 (89.2)
Yes	16 (11.7)	8 (12.7)	8 (10.8)

Table 4. Logistic regression analysis: no intention to re-consumption vs. intention to re-consumption among ever-energy drink user (N = 137)

Characteristics	Intention to re-consumption (vs. no intention to re-consumption) Odds ratio	P value	95% Confidence interval
Gender			
Female	Ref		
Male	1.85	0.278	0.73-4.69
School year			
Freshman	Ref		
Sophomore	1.50	0.518	0.53-4.22
Junior	0.45	0.236	0.15-1.36
Senior	0.36	0.093	0.13-0.98
Residence with family			
Yes	Ref		
No	0.65	0.554	0.19-2.18
Cigarette smoking			
Non-smoker	Ref		
Smoker	0.35	0.350	0.06-2.21
Alcohol drink			
Non-drinker	Ref		
Drinker	1.18	0.753	0.49-2.87
Perceived academic stress			
No	Ref		
Yes	0.99	0.977	0.44-2.22
Depression			
No	Ref		
Yes	0.40	0.086	0.16-0.96
Self-esteem	0.99	0.788	0.96-1.03
Adjustment to college	0.99	0.223	0.97-1.01
Reasons for re-consumption			
Good for fatigue			
No	Ref		
Yes	2.61	0.030	1.26-5.38
Awake from sleep			
No	Ref		
Yes	5.61	0.001	2.44-12.89
Good for taste			
No	Ref		
Yes	7.11	0.001	2.73-18.55
Copycat to friends			
No	Ref		
Yes	0.68	0.618	0.19-2.42

Conclusion

- The consumption of caffeine containing energy drinks is common among nursing students who are destined to become future health care professionals and health educators.
- Awareness of factors associated with caffeine containing energy drink consumption and the intention to re-consume caffeine containing energy drinks provides useful health education tips and hopefully discourages unhealthy behavior by school health providers.