Table 1. Summary of Studies included in the Review.

Authors/ Date/ Location	Study Aims and Objectives	Sample Characteristics	Research Design & Method(s)	Analysis	Findings/Conclusions
Azagba, et al (2014). Canada	To examine the prevalence, patterns, and correlates of energy drink use among adolescents, and determine whether more frequent use of energy drinks is associated with poorer health and behavioural outcomes.	n = 8210 7th, 9th, 10th, and 12th grade students Male=48.2% Female=51.8% Mean age = 15.2 years.	Quantitative Cross-sectional survey	Multinomial logistic regression analysis was used to examine correlates of ED use patterns, including substance use, sensation seeking, risk of depression, and socioeconomic status.	Nearly two-thirds of survey respondents (62%) reported consuming ED at least once in the previous year, with about 20% reporting use once or more per month. Sensation seeking, depression, and substance use were all higher among energy drink users relative to non-users, and in higher frequency users' relative to lower frequency users
Emond, et al J (2014). USA	To assess the association between energy drink use and hazardous alcohol use among a national sample of adolescents and young adults.	n = 3342 15-17 years old = 45.1% 18-20 years old = 32.7% ≥21 years old = 22.1%Male= 51% Female=49 %	Quantitative Cross Sectional survey. Computer-assisted telephone interview	Hazardous alcohol use outcomes were measured with the AUDIT (Alcohol Use Disorders Identification Test) Demographic characteristics, and sensation seeking propensity was assessed. Multivariate logistic regression was used to fit each of the 4 alcohol use outcomes on ED use measures	Among 15-17 year olds, 13.3% recently consumed an ED, 9.7% ever consumed an ED mixed with alcohol, and 47.1% ever drank alcohol. Recent ED use predicted ever alcohol use among 15-17-year-olds only. Of these 15-17-year-olds, 17% met the 6+ binge drinking criteria, 7.2% met the 8+AUDIT criteria, and 16.0% met the 4+AUDIT criteria. Rates of ED use and all alcohol use outcomes increased with age.

Evren, & Evren, (2015). Turkey	(1) To determine the prevalence of ED consumption among 10th grade students (2) To compare users and non-users of EDs with respect to gender, sensation seeking, and substance-use characteristics, while controlling the effect of psychological factors. (3) To examine the interaction between the effects of three clusters of substances on ED consumption.	n = 4957 10th grades students from 45 schools in 15 districts. Male = 52.7%, Female = 47.3% Mean age (years) = 15.56 ±2.74 (SD)	Quantitative Online self-report questionnaire	Logistic analysis (Forward Wald) was conducted. A multivariate analysis (two way ANCOVA	Psychological states (heightened sensation seeking, elevated depression, anxiety, anger and impulsivity) self-destructive behaviour (self-harming and suicidal thoughts), and risky behaviours (tobacco, alcohol, and other drug use) were all associated with an increased likelihood of ED consumption. Associations between ED consumption and the use of tobacco, alcohol and drug through sensation seeking were independent from each other.
Gallimbert et al (2013). Italy	To investigate the frequency of energy drink consumption in children and early adolescents, and to study factors, such as addictive behaviours, associated with regular, at least once in a week, energy drink consumption.	n = 913 (11 - 13 year olds) Male=52.5% Female=47.5 % Age = 12.2 (± 1.1) years	Quantitative Cross-sectional survey	Bivariate analysis - to seek the relationship between demographic, environmental, and behavioural variables, and the consumption of EDs. Multivariate logistic regression – to seek any association between the frequent consumption of EDs and demographic, environmental, and behavioral variables emerging from the bivariate analysis	The independent variables conferring a higher likelihood of being a regular consumer (at least once a week) of EDs were smoking and alcohol consumption. Awareness among the students of the potential damage caused by energy drinks was found to have a protective role, reducing the likelihood of the students' drinking them

Hamilton, et al (2014). Canada	To examine energy drink consumption and its association with demographic characteristics, drug use, and injury among adolescents	n = 4342 grade 7 to 12 students Male=53.2%, Female=46.8 Age = 15.1 ± 0.1 years	Quantitative Data were derived from the 2011 Ontario Student Drug Use and Health Survey (OSDUHS).	Logistic regression was used to examine the associations between various independent variables and ED consumption. Separate two-way interactions were used to test interactions involving the independent variables and sex.	ED consumption in the previous year was highly associated with having used tobacco and cannabis in the previous year, the non-medicinal use of prescription drugs in the previous year, and binge drinking in the previous month. Consumption was also highly associated with sensation-seeking and self-reports of medical treatment for an injury The odds of consuming ED did not vary significantly for males and females, and sex was not a significant moderator of the associations examined.
Jackson, et al (2013). USA	To assess the prevalence of physiologic and behavioural adverse effects among adolescent (13 – 17 years) and adult (18 – 25 years) emergency department patients who reported past 30-day ED and/or caffeinated-only beverage use.	n = 167 emergency department patients. Males: 96 Females: 73	Quantitative Cross-sectional pilot study. Computer-based, self-administered, anonymous questionnaire	Multivariable logistic regression and negative binomial regression models, adjusted for age, gender, and substance use, were created to compare the occurrence of each adverse effect between ED and caffeinated-only beverage users.	53.3% reported consuming EDs, 39.1% caffeinated-only beverages, and 7.6% no ED or caffeinated-only beverages within the past 30 days. ED users were more likely than caffeinated-only beverage users to report having " gotten into trouble at home, school, or work " in the past 30 days. More behavioural effects were reported among drug users and more physiologic effects were reported among tobacco users but not among energy drink users.
Larson et al (2014). USA.	To examine patterns of adolescent sports and energy drink (SED)consumption and identify behavioural correlates.	n = 2793 grades 6-12 students Male = 46.8%, Female=53.2% Mean age = 14.4 years (SD, 2.0 years	Quantitative Cross-sectional study	Linear and logistic regression models were used to estimate associations between health behaviour and SED consumption, adjusting for demographics.	ED and sports drink were consumed at least once a week by 14.7% and 37.9% of sample. Both sports and energy drink consumption were related to higher video game use, sugar-sweetened beverage and fruit juice intake; and smoking but did not significantly influence the mean hours of sleep per day.

Miyake & Marmostei (2014). USA	To examine concurrent and longitudinal associations between ED and alcohol use.	Initial assessment, n = 144 6th and 7th grade students Male=50% Female=50% Final assessment, n= 127	Quantitative Self-report questionnaire	Linear regression (to assess any concurrent association); Multiple imputation procedure (PROC MI) (to handle missing data); MIANALYZE procedure (to combined the results of the analyses of imputation	Frequency of energy drink use at the initial assessment predicted increases in frequency of alcohol use 16 months later (adjusting for initial frequency of alcohol use). Whilst levels of parental monitoring partially accounted for this association, there was no evidence that sensation seeking was related to this association.
Nowak, & Jasionowski, (2015). Poland	To assess the association between energy drink use and hazardous alcohol use among a national sample of adolescents and young adults	N=3342 youth aged 15-23 years	Quantitative Cross-sectional analysis	Bivariate analyses compared the frequency of energy drink use in the past 7 days and each of the 4 alcohol use outcomes by baseline characteristics. Multivariate logistic regression was used to fit each of the 4 alcohol use outcomes on energy drink use measures; models for the 3 hazardous alcohol use outcomes were limited to participants who reported ever drinking alcohol.	17 year olds (n = 1508), 13.3% recently consumed an energy drink, 9.7% ever consumed an energy drink mixed with alcohol, and 47.1% ever drank alcohol. Recent energy drink use predicted ever alcohol use among 15-17-year-olds only Of these 15-17-year-olds, 17% met the 6+ binge drinking criteria, 7.2% met the 8+AUDIT criteria, and 16.0% met the 4+AUDIT criteria. Rates of energy drink use and all alcohol use outcomes increased with age. Positive associations between energy drink use and hazardous alcohol use behaviours are not limited to youth in college settings
Schwartz et al (2014). USA	To examine the association of sweetened beverage (including EDs) consumption with hyperactivity/inattention symptoms among middle school students	Students n = 1649 Male=46%, Female=54%	Quantitative Online self-administered survey	Descriptive statistics (n/% and mean/SD) Multivariable logistic regression analysis to estimate the association of EDs consumption with risk of hyperactivity/ inattention	Mean score (SD) on the Hyperactivity/Inattention subscale of the Strengths and Difficulties Questionnaire =3.2(2.1).(n= 242,15%) scored in the at-risk category. Students categorised as 'Normal' were less likely to consume ED (13.4% vs 21.1%) compared to at-risk category. Students reporting consumption of EDs were 66% more likely to score in the at- risk category on the HIS.

Terry-McElrath,t al (2014). USA	To examine energy drink/shot and regular and diet soft drink use among US secondary school students in 2010–2011, and associations between such use and substance use.	n = 21995 8th, 10th, and 12th grade students Male=49% Female=51%	Quantitative Cross-sectional survey using self-completed questionnaires	Multivariate survey logistic regression models in Stata 12 were used to compare the relative strength of observed associations between beverage and substance use.	Beverage consumption was strongly and positively associated with past 30-day alcohol, cigarette, and illicit drug use. The observed associations between energy drinks and substance use were significantly stronger than those between regular or diet soft drinks and substance use.
Van Batenburg-Eddes, T., Lee, N., Weeda, W., Krabbendam, L., and Huizinga, M. (2014) Netherlands	To study the associations of both caffeine intake and ED consumption with executive functions (EFs), and the role of pubertal status and sleeping problems	n = 509 Male=52%, Female=48% Mean age: 13.1 years, SD 0.85	Quantitative Cross sectional survey.	Linear regression analysis to assess association between ED intake and EF	Consuming on average one or more ED(s) a day was associated with more problems in self-reported behaviour regulation and metacognition, and with more problems in parent-reported metacognition. The sum of caffeine and ED use was associated with a higher amount of problems with self-reported metacognition and parent reported behaviour regulation. The effect estimates for the association between caffeine and ED use combined and EFs did not exceed those of EDs or caffeine separately. Adjusting for pubertal status, gender, educational level, number of sleeping problems and hours of sleep did not change the effect estimates substantially.