Supplementary Table 7. Studies of School Vending Machines

Author, y	Design	Population	Outcomes	Duration	Intervention/Exposure	Findings
Nickelson et al, 2010[244]	Observational, cross-sectional	8 public middle schools N=4049 Age: 6th-8th grades	• Self-reported parental limits on soft drink intake • School vending machine soft drink purchases • Soft drink consumption	Survey taken during 1 class period	YRBSS • Observed 7 items from YRBSS in relation to purchases of soft drinks from school vending machines and consumption of soft drinks at school/home • Examined survey question about parental limits on consumption of soft drinks • Measured age, sex, race/ethnicity, milk, and fruit juice intake	• 67% of students reported consuming no soft drinks per day. • 54% of students reported no parental limits on consumption, 33% reported a limit of 1 soft drink per day, and 14% reported a limit of 2-3 soft drinks per day. • The greatest number of purchasers of soft drinks from school vending machines were students who reported a parental limit of 2-3 soft drinks per day (29%) or no parental limit (27%) ($P<0.001$). • Students with the lowest soft drink purchases from school vending machines (20%) reported a parental limit of 1 soft drink per day ($P<0.001$).
Park et al, 2010[246]	Observational, cross-sectional	73 Florida public middle schools N=4322 Age: 6th-8th grades	• Use of school vending machines • Consuming snacks/caloric beverages in place of lunch	Spring 2003	Florida Youth Physical Activity and Nutrition Survey • Statewide, self-reported school-based survey for middle school students to monitor attitudes, behaviors, physical activity, and nutrition knowledge • Developed by Florida Dept of Health • Survey examined vending machine types and items offered • Items were grouped into healthier and less healthy snacks and beverages.	• 99% of students reported the presence of a vending machine serving snacks, 89% reported a beverage vending machine, and 88% reported having both. • 70% reported buying less healthy snacks and 69% reported buying less healthy beverages. • In schools with a beverage vending machine, more students (19%) selected snacks/beverages instead of lunch than in schools without beverage vending machines (7%) ($P<0.05$). • Students in schools with a beverage machine had a higher risk for buying lunch from the vending machine (adjusted OR=3.5; 95% CI, 2.2-5.7). • Students who bought snacks/beverages from the vending machines instead of school lunch ≥3 days per week more often purchased less healthy snacks.
Thompson et al, 2010[245]	Observational, cross-sectional	Public school students N=869	• Access to school vending machines • Food purchases and dietary intakes	Given May–June 2005	Youth Styles Survey • Consumer mail panel survey as part of Styles survey • Survey inquired about school	• 58.7% of students reported that access to school vending machines was restricted to certain hours. The majority of these students reported not making any purchases from the vending machine ($P<0.05$). • Students who bought food from the

					vending machine access, purchasing behaviors, school rules about vending machines, individual dietary intakes, and purchase of pizza/fried foods from the school cafeteria.	vending machine ≥3 days per week were more likely to have unrestricted access to vending machines (OR=1.71; 95% CI, 1.13-2.59), drink soda (OR=3.21; 95% CI, 1.87-5.51), and eat chocolate/candy (OR=2.71; 95% CI, 1.34-5.46) at least 1 or more times per day. • Students who bought lunch 1-2 times per week were more likely to buy fried foods/pizza from the school cafeteria (OR=2.43; 95% CI, 1.69-3.49); those buying food >3 times per week were even more likely to buy fried foods/pizza (OR=5.05; 95% CI, 3.10-8.22).
Fiske and Cullen, 2004[109]	RCT	10 vending machines in teachers' lounges in Texas elementary and middle schools	• Assessed items sold • Assessed dollar sales for items • Total machine revenue	2-wk baseline assessment; 4-wk intervention	Teacher vending machines: • Each machine had 28 snack items and 5 choices of gum. • Low-fat items were promoted by – Labels (intervention I, 4 machines) – Labels plus signs (intervention II, 4 machines) – No intervention (control, 2 machines)	• Intervention I resulted in a trend toward a small increase in sales of low-fat items (P=0.08). • Intervention II resulted in more target foods sold, without a significant effect on total dollar sales (P=0.11). • A significant difference in total machine revenue was not seen in either intervention.
Gorton et al, 2010[247]	Quasi-experimental (pre- vs postintervention)	14 vending machines at 2 hospital sites N=835 at baseline; N=611 at follow-up (Included here although worksite-based)	• Web-based staff surveys: 1 preintervention and 1 midway through intervention • Sales data pre- vs postintervention	March–May 2007 and March–May 2008	Hospital vending machines: • Intervention to provide at least 50% more healthy choices in vending machines (defined as <800 kJ, <1.5 g saturated fat per 100 g, <450 mg per 100 g nonconfectionery items), and 50% other choices (<800 kJ)	• Preintervention: 16% of staff used vending machines ≥1 time per day, 51% said they tried to choose healthier items, and 84% reported they never or infrequently used vending machines. • Mid intervention: no significant changes. • End intervention: no significant changes. 15% used vending machines >1 time per day, 53% said they tried to choose healthier items, and 85% reported they never or infrequently used vending machines. • 87% of staff who frequented vending machines reported noticing that healthier snacks were available. • 54% of staff who frequented vending machines reported changing their choices, with 31% doing so to make healthier choices. • Postintervention, average purchase: 40% lower kJ, 32% lower total fat, and 41%

						lower saturated fat

YRBSS indicates Youth Risk Behavior Surveillance System; OR, odds ratio; CI, confidence interval; and RCT, randomized controlled trial.

Note: Reference numbers (eg, Nickelson et al, 2010[238]) appearing in this supplementary table correspond with those listed in the reference section of the statement. For the purposes of this supplementary table, these meta-analyses or systematic reviews (see "Author, y" column) are considered the primary citation. Additional studies mentioned in the primary citation may be included in the "Intervention/Exposure" and "Findings" columns. The additional studies can be accessed through the primary citation.