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Projecting the Impact of a Nationwide School Plain Water Access Intervention on Childhood Obesity: A Cost-benefit Analysis

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Abstract

Objective—This study aimed to project the societal cost and benefit of an expansion of a water access intervention that promotes lunchtime plain water consumption by placing water dispensers in New York school cafeterias to all schools nationwide.

Methods—A decision model was constructed to simulate two events under Markov chain processes—placing water dispensers at lunch times in school cafeterias nationwide versus no action. The incremental cost pertained to water dispenser purchase and maintenance, whereas the incremental benefit was resulted from cases of childhood overweight/obesity prevented and corresponding lifetime direct (medical) and indirect costs saved.

Results—Based on the decision model, the estimated incremental cost of the school-based water access intervention is \$18 per student, and the corresponding incremental benefit is \$192, resulting in a net benefit of \$174 per student. Subgroup analysis estimates the net benefit per student to be \$199 and \$149 among boys and girls, respectively. Nationwide adoption of the intervention would prevent 0.57 million cases of childhood overweight, resulting in a lifetime cost saving totaling \$13.1 billion. The estimated total cost saved per dollar spent was \$14.5.

Conclusions—The New York school-based water access intervention, if adopted nationwide, may have a considerably favorable benefit-cost portfolio.

Keywords

Childhood obesity; Cost-benefit analysis; Decision analysis; Dietary intake; Plain water; School

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Conflicts of Interest Statement

The authors have no conflicts of interest to declare.

Author Contributions

R An designed the study, conducted the analysis, and wrote the manuscript. L Wang revised the manuscript. H Xue and Y Wang advised on the analysis and revised the manuscript.

Introduction

Childhood obesity is linked with various immediate and long-term adverse health outcomes such as sleep apnea, hypertension, heart disease, stroke, type 2 diabetes, osteoarthritis, and certain types of cancer, and leads to social and psychological problems like stigmatization and poor self-esteem.^{1, 2} Currently approximately 12.5 million or 17% of children and adolescents aged 2–19 years are obese, tripling the childhood obesity prevalence in 1980.³

Drinking plain water, such as tap or bottled water, delivers adequate hydration without adding calories.⁴ Several small-scale interventions to improve plain water access in school settings have documented increased water consumption, reduced discretionary calorie intake, and/or healthier body weight status among students.^{5, 6} However, evidence based on population-level interventions at a naturalistic setting remained largely nonexistent. In 2009, New York's Department of Education and Department of Health and Mental Hygiene launched an intervention to improve plain water access at lunchtime by placing water dispensers in school cafeterias.⁷ Water dispensers distributed in New York public schools are devices that hold tap water in large clear jugs, and electrically cool, oxygenate, and dispense water at a fast speed. Disposable cups were supplied by schools for use with the water dispensers. The goal of the intervention was to promote plain water consumption in substitution for caloric beverages among school students. Water dispensers were first distributed to some New York public schools and gradually expanded to others. Till the 2012–2013 academic year, nearly two thirds of public elementary and middle schools in New York had a water dispenser installed in the cafeteria. Elbel *et al.*⁷ conducted a pre-post study based on data collected in 19 schools (9 intervention schools and 10 control schools) in New York, and found that students in intervention schools had a 3-fold increase in plain water consumption and a small decline in milk consumption in comparison to their control school counterparts. Adopting a difference-in-difference approach, Schwartz *et al.*⁸ advanced Elbel *et al.*⁷'s investigation by examining the impact of the school-based water access intervention on body weight status among one million students enrolled in 1227 New York public schools between 2008–2009 and 2012–2013. Adoption of water dispensers in schools was found to be associated with a 0.9 and 0.6 percentage point reduction in the risk of overweight (body mass index [BMI] between 85th and 95th percentiles of the Centers for Disease Control and Prevention [CDC] 2000 growth chart) among boys and girls, respectively.⁹ These reductions coincided with a noticeable decrease in students' purchase of milk half-pints.

Built upon a decision model with a societal perspective, this study aimed to assess the cost and benefit of a nationwide expansion of the school-based water access intervention piloted in the New York public school system to all public and private schools in the U.S. It intended to answer three questions: (1) What are the per capita and total intervention costs to the federal/state government and economic gains resulted from cases of childhood overweight/obesity prevented? (2) Do the economic gains justify the costs? (3) How robust are the modeling outcomes to changes in model assumptions and variable values/distributions? Study findings may be informative to policy makers for designing relevant intervention programs, and comparing their benefit-cost portfolio to other competing programs on childhood health promotion and obesity prevention.

Methods

We conducted a cost-benefit analysis in 2016 to assess the possible societal impact of a nationwide expansion of the school-based water access intervention. Cost-benefit analysis is a method to systematically calculate and compare costs and benefits of alternative policy scenarios in order to make informed decisions.¹⁰ It involves estimating the total expected cost of each option against the total expected benefits to see whether the benefits outweigh the costs and by how much. Cost-benefit analysis was conducted on the entire school student population and by sexes (i.e., boys and girls). The study involved secondary-data analysis of de-identified, publicly available data, and therefore was exempted from human subjects review.

Decision model

Our cost-benefit analysis was based on a decision model. Decision model is a quantitative method for identifying, representing, and assessing various alternatives, to determine the best course of action.¹¹ It uses mathematical and statistical functions to represent specific decision problems and allows analysts to compare alternative policy scenarios by simulating the expected outcome of each decision sequence. The decision model was built and simulated using TreeAge Pro 2017 (TreeAge Software Inc., Williamstown, MA).

Markov chains are a stochastic process that describes a sequence of possible events in which the probability of each event depends only on the state attained in the previous event.¹¹ Our decision model simulated two possible events using Markov chains: the “experiment” event of placing water dispensers at lunch times in school cafeterias nationwide, or the “control” event of no action. Both events were simulated in Markov chains where subjects were exposed to an annual, age- and sex-specific risk of death, with survivors gaining one year of life and corresponding costs, if any (costs only pertained to overweight/obese subjects). This process was repeated until all subjects died. We used the national age- and sex-specific all-cause mortality rate from the United States Life Tables, 2011 to approximate the risk of death among people in both the “experiment” and “control” events.¹²

Intervention cost and benefit

The intervention costs included a one-time spending on water dispenser purchase and annual maintenance expenses. The intervention effectiveness pertained to cases of childhood overweight prevented. As overweight children are likely to become overweight/obese adults, and overweight/obese adults are associated with increased direct (i.e., medical) and indirect (e.g., absenteeism and presenteeism) costs in comparison to their normal-weight counterparts, we assumed that through this channel the school-based water access intervention accumulated economic benefit by reducing childhood overweight rate. Because Schwartz *et al.*⁸ did not identify statistically significant impact of the school intervention on childhood obesity (BMI ≥ 95th percentile), on the conservative side we assumed that the intervention had effect only on reducing childhood overweight (85th percentile – BMI < 95th percentile) but not obesity. The net benefit of the intervention was calculated by subtracting the net present value of economic gains resulted from cases of childhood overweight prevented from the costs incurred in water dispenser purchase and maintenance.

Key variables

Table 1 summarizes key variables and their corresponding values/distributions used in the decision model. Key variables include: annual discount rate, risk reduction of childhood overweight by the school-based water access intervention, direct cost of adult overweight, direct cost of adult obesity, percent of medical cost of adult overweight/obesity over total economic cost, probability of an overweight child to become an overweight/obese adult, age since economic cost of adult overweight/obesity accumulates, purchase and maintenance cost of school water dispenser, prevalence of adult overweight/obesity, and number of public and private schools and enrollment in the U.S.^{3,7,8,14–24} Appendix provides detailed explanations regarding each key variable and its value assignment in the decision model.

Policy simulation and sensitivity analyses

The decision model underwent a series of sensitivity analyses. In one-way sensitivity analysis, all variables were held constant except one. Subsequently, a probabilistic sensitivity analysis was performed using a second-order Monte Carlo simulation, in which 10,000 simulated trials were run, with each input sampled at random from probability distribution functions assigned to individual variable. Normal distributions were assigned to all variables including risk reductions of childhood overweight by the school-based water access intervention, annual discount rate, direct costs of adult overweight/obesity, percent of medical cost of adult overweight/obesity over total economic cost, probabilities of an overweight child to become an overweight/obese adult, age since economic cost of adult overweight/obesity accumulates, and one-time purchase and annual maintenance cost of school water dispenser. The ranges of variable values used in one-way sensitivity analysis and the distribution specifications for the Monte Carlo simulation are reported in Table 1 (columns 3 and 4). Prevalence of adult overweight/obesity and number of public and private schools in the U.S. as well as enrollment remained constant in all sensitivity analyses.

Results

Based on the decision model, the estimated average incremental cost of the school-based water access intervention is \$18 per student, and the corresponding incremental benefit is \$192, resulting in a net benefit of \$174 per student. Subgroup analysis estimated the average net benefit per student to be \$199 and \$149 among boys and girls, respectively. Nationwide adoption of the intervention would prevent 0.57 million cases of childhood overweight, resulting in a lifetime cost saving totaling \$13.1 billion. The estimated total cost saved per dollar spent was \$14.5.

Figure 1 shows results from one-way sensitivity analysis. Across their respective range of values, annual discount rate and risk reductions of childhood overweight attributable to the school-based water access intervention tend to have the largest impacts on the estimated net benefit. A 6% annual discount rate is associated with a net benefit of \$104 per student attributable to the intervention; whereas a 0% annual discount rate is associated with a net benefit of \$342. An overweight reduction of 0.3% among boys by the school-based water access intervention is associated with a net benefit of \$102 per student; whereas an overweight reduction of 1.5% among boys is associated with a net benefit of \$247.

Analogously, an overweight reduction of 0.1% among girls by the school-based water access intervention is associated with a net benefit of \$105 per student; whereas an overweight reduction of 1.1% among girls is associated with a net benefit of \$244. Variations in medical costs of adult overweight/obesity and probabilities of an overweight child to become an overweight/obese adult have some but smaller impacts on the estimated net benefit attributable to the school-based water access intervention. An increase in annual per capita medical cost by \$200 and \$500 due to adult overweight is associated with a net benefit of \$147 and \$201 per student attributable to the intervention, respectively. Analogously, an increase in annual per capita medical cost by \$1,000 and \$2,000 due to adult obesity is associated with a net benefit of \$131 and \$217 per student attributable to the intervention, respectively. Other variables, including percent of medical cost of adult overweight/obesity over total economic cost, probabilities of an overweight child to become an overweight/obese adult, and age since economic cost of adult overweight/obesity accumulates, have considerably smaller impact on the estimated net benefit attributable to the school-based water access intervention. In particular, the influences from purchase and maintenance costs of school water dispenser tend to be minimal.

Figure 2 shows the histogram of the estimated net benefit attributable to the school-based water access intervention based on the second-order Monte Carlo simulation. Out of the 10,000 simulations, 9,852 of them (98.4%) report a positive net benefit, and 148 of them (1.48%) report a negative net benefit. The mean net benefit is \$174 per student. Over 66% of the net benefit estimates range from \$51 to \$250, and over 86% of the net benefit estimates range from \$51 to \$400.

Discussion

Plain water consumption has many benefit, including being friendly to the environment and reduced energy consumption and improved body weight management.²⁵ Potential mechanisms include, but may not be limited to, plain water intake in substitution for caloric beverage consumption, and satiety from plain water consumption in coping with feelings of hunger and desire to eat.²⁶ The 2015–2020 Dietary Guidelines for Americans recommended “choosing beverages with no added sugars, such as water, in place of sugar-sweetened beverages” as an effective strategy to reduce added sugar consumption.²⁷ However, water intake from drinking fountains among students has declined over the past few decades, potentially due to the influence from the beverage industry to promote soda consumption, people’s concerns regarding the safety of drinking water, and the lack of accessibility to plain water in schools and other public facilities.^{28, 29}

This study evaluated the cost and benefit of an expansion of a plain water access intervention implemented in New York public schools to all public and private schools nationwide. The intervention was found to be cost-saving, which led to a net benefit of \$174 per student. Nationwide adoption of the intervention would prevent over 0.5 million childhood overweight cases, and result in a total cost saving of over \$13 billion through reduced medical and indirect costs of overweight and obesity.

The projected benefit-cost portfolio of this school-based water access intervention tended to be competitive in comparison to many “main-stream” population-level childhood obesity interventions and/or policies. Gortmaker *et al.*²⁹ evaluated the benefit-cost portfolios of seven interventions that reduced childhood obesity. Three of them were found to be cost-saving—sugar-sweetened beverage excise tax, nutrition standards for food and beverages sold in schools outside of meals, and elimination of the tax deduction for advertising unhealthy food to children were projected to result in a net benefit of \$14.2, \$0.8, and \$0.3 billion, and prevent childhood obesity cases of 0.58, 0.34, and 0.13 million, respectively. In contrast, other interventions including restaurant menu calorie labeling, nutrition standards for school meals, improved early care and education policies and practices, and increased access to adolescent bariatric surgery were not found to be cost saving.

The estimated net benefit attributable to the school-based plain water access intervention tended to be larger among boys (\$199) than girls (\$149). This modeling outcome was largely resulted from the fact that a larger impact of the intervention among boys was identified by Schwartz *et al.*⁸ (0.9% reduction of overweight rate among boys vs. 0.6% among girls). Nevertheless, sensitivity analyses indicated that both net benefit estimates tended to be robust across parameter value and distribution assignments, and the probabilities of a positive net benefit were high for both sexes.

This study, to our knowledge, serves as the first cost-benefit analysis that evaluated the policy impact of a nationwide school-based plain water access intervention on childhood obesity. The study adopted a societal perspective, simulated the long-term policy impact through people’s life course, incorporated parameters that are most up-to-date and authoritative in model estimation, and conducted a wide range of sensitivity analyses to test the robustness of modeling outcomes under deep uncertainties.

Several limitations of this study should be noted. The model identified the economic benefit of the school-based water access intervention solely based on cases of childhood overweight prevented, whereas other related benefits such as improved hydration status and diet quality, avoided mobility and postponed mortality were not captured, which would result in underestimation of intervention benefit. On the other hand, if a federal/state mass purchase of water dispensers for school use disturbs market equilibrium and raises price, the model might underestimate intervention cost. The model assumed a universal intervention effect among all public and private schools nationwide, but New York schools may not have national representativeness and in reality the intervention effect is likely to differ across geographical locations and populations. The analysis of costs and risk over the lifetime is rather simplistic, which assumes a fixed incremental healthcare cost attributable to overweight and obesity across ages among adults, and a fixed overweight rate reduction across ages among children. Moreover, the cost benefit analysis was based on evidence from an observational study.⁸ Despite its natural experiment study design, lack of randomization precluded a causal interpretation of the estimated intervention effectiveness. One critical assumption of the decision model simulation was that the school-based plain water access intervention would result in permanent reductions in the incidence of adult overweight and obesity. However, the probabilities of overweight children turning into overweight or obese adults were based on observational evidence. It was far from certain that interventions in the

school environment were capable of producing a homogenous effect. If the intervention did not change children's life style but only temporarily depressed weight, then upon leaving school, they would quickly reach the weight they would have had without the access to water during their school years. Despite the high degree of uncertainty and various study limitations, with a ratio of benefits to costs as high as this, and with an extensive sensitivity analysis not leading to different conclusions, there is a high likelihood that this low-cost intervention will deliver a net benefit to society. Given the rapidly growing childhood obesity epidemic, effective programs and policies are warranted at global, regional and national levels to reduce obesity rate among children.³⁰ The school-based plain water access intervention has the potential to be adapted in developing countries as a population-level mid-to low-cost obesity prevention.

In conclusion, this study projected the cost and benefit of an expansion of a water access intervention that promotes lunchtime plain water consumption by placing water dispensers in New York school cafeterias to all schools nationwide. The average net benefit is estimated to be \$174 per student. Nationwide adoption of the intervention would prevent 0.57 million cases of childhood overweight, resulting in a lifetime cost saving totaling \$13.1 billion. Future research based on experimental study design and a nationally representative sample is warranted to confirm ours and previous estimates on school-based water access intervention effects and costs. Such intervention could be potentially promising and adopted nationwide given its favorable benefit-cost portfolio.

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Abbreviations

BMI	body mass index
CDC	Centers for Disease Control and Prevention

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Appendix

Variables and corresponding values adopted in the decision model

1. Annual discount rate

The decision model adopted a societal perspective, and used a 3% discount rate on future costs and benefits following the Recommendations of the Panel on Cost-effectiveness in Health and Medicine.¹³

2. Risk reduction of childhood overweight by the school-based water access intervention

Schwartz *et al.*⁸ reported the intervention in New York schools to be associated with a 0.9 and 0.6 percentage point reduction in the risk of overweight among boys and girls, respectively.

3. Direct cost of adult overweight

Based on two nationally representative health survey data, Finkelstein *et al.*¹⁴ estimated per capita annual medical cost associated with adult overweight (25 kg/m² BMI < 30 kg/m²) to be \$247 in 1998 U.S. dollars. Dor *et al.*¹⁵ and Tsai *et al.*¹⁶ conducted a systematic review and/or meta-analysis and reported per capita annual medical cost associated with adult overweight to be \$346 in 2009 U.S. dollars and \$266 in 2008 U.S. dollars, respectively. After adjusting for inflations based on the Consumer Price Index issued by the U.S. Bureau of Labor Statistics,¹⁷ the decision model assigned \$350 (in 2016 U.S. dollars) to the per capita annual medical cost of adult overweight.

4. Direct cost of adult obesity

Finkelstein *et al.*¹⁸ estimated per capita annual medical cost associated with adult obesity (BMI ≥ 30 kg/m²) to be \$1,429 in 2006 U.S. dollars. Tsai *et al.*¹⁶ conducted a systematic review and reported per capita annual medical cost associated with adult obesity to be \$1,723 in 2009 U.S. dollars. Based on two nationally representative health survey data, An¹⁹ estimated per capita annual medical cost associated with adult obesity to be \$1,360 in 2011 U.S. dollars. After adjusting for inflations, the decision model assigned \$1500 (in 2016 U.S. dollars) to the per capita annual medical cost of adult obesity.

5. Percent of medical cost of adult overweight/obesity over total economic cost

Besides medical cost, a large proportion of economic cost of overweight/obesity is resulted from absenteeism (sick leave), presenteeism (productivity loss), wage differential, disability, etc.^{15, 20} Dee *et al.*²¹ conducted a systematic review on both direct (medical) and indirect costs of overweight/obesity, and found that the indirect cost accounted for between 54% and 59% of the estimated total cost. The decision model thus assigned 43.5% to the proportion of medical cost of adult overweight/obesity over total economic cost.

6. Probability of an overweight child to become an overweight/obese adult

Overweight children are more likely to become overweight/obese adults.²² Guo *et al.*²³ predicted overweight/obesity in adulthood from BMI values in childhood by age and sex. Based on Guo *et al.*²³, the decision model assigned 48.8% as the probability of an overweight boy to become an overweight adult, 35.2% as the probability of an overweight girl to become an overweight adult, 18.2% as the probability of an overweight boy to become an obese adult, and 24.2% as the probability of an overweight girl to become an obese adult.

7. Age since economic cost of adult overweight/obesity accumulates

Studies that evaluated the medical and indirect (e.g., absenteeism and presenteeism) costs of obesity covered a wide age range from early to late adulthood.^{14–16, 18–21} The decision model assumed that since the age of 35 years economic cost of adult overweight/obesity started to accumulate.

8. Purchase and maintenance cost of school water dispenser

Schwartz *et al.*⁸ documented the market price of school water dispenser provided to New York public schools to be approximately \$1,000 each, which was used in the decision model. No formal data were found on the annual maintenance cost of school water dispenser. Based on Elbel *et al.*⁷, “[c]afeteria workers reported that the water jets were simple to clean and operate”, and “[t]he kitchen staff spent on average 5 to 15 minutes daily on maintenance (clean and set up the water jet and refill the water and cups as necessary).” We assumed on average a kitchen staff was paid an hourly rate of \$15, worked 10 minutes per day on water dispenser maintenance, and worked 200 days a year, which resulted an annual maintenance cost of \$500. Given an average life of five years for a water dispenser, its lifetime maintenance cost is \$2,500. Three water dispensers are needed in order to provide plain water access to a student since kindergarten till high school graduation (a total of 14 years). To be on the conservative side, the decision model assigned \$3,000 as the total water dispenser purchase cost, and \$7,500 as the total maintenance cost.

9. Prevalence of adult overweight/obesity

The decision model adopted adult overweight/obesity rates based on recent population surveillance data from the National Health and Nutrition Examination Survey.³ The prevalence of adult overweight among males was assigned to be 37.8%, prevalence of adult overweight among females 29.7%, prevalence of adult obesity among males 33.5%, and prevalence of adult obesity among females 36.1%.

10. Number of public and private schools and enrollment in the U.S

Data on the total number of public and private schools in the U.S., including primary, secondary, and high schools, as well as their enrollment in 2015, came from the National Center for Education Statistics.²⁴

What is already known about this subject?

- Drinking plain water, such as tap or bottled water, delivers adequate hydration without adding calories.
- Several small-scale interventions to improve plain water access in school settings have documented increased water consumption, reduced discretionary calorie intake, and/or healthier body weight status among students.

What does this study add?

- This study constructed a decision model to project the cost and benefit of an expansion of a water access intervention that promotes lunchtime plain water consumption by placing water dispensers in New York school cafeterias to all schools nationwide.
- The estimated incremental cost of the school-based water access intervention is \$18 per student, and the corresponding incremental benefit is \$192, resulting in a net benefit of \$174 per student.
- Nationwide adoption of the intervention would prevent 0.57 million cases of childhood overweight, resulting in a lifetime cost saving totaling \$13.1 billion. The estimated total cost saved per dollar spent was \$14.5.

Figure 1.

Figure 2.

Table 1

Variables in cost-benefit analysis

Variable	Base-case value	Low/high value in one-way sensitivity analysis	Distribution in Monte Carlo simulation	References
Annual discount rate	3%	low = 0%, high = 6%	Normal: mean = 3%, SD = 1%	Ogden et al., 2014
Risk reduction of childhood overweight by school water dispenser among boys	0.009	low = 0.003, high = 0.015	Normal: mean = 0.009, SD = 0.003	Schwartz et al., 2016
Risk reduction of childhood overweight by school water dispenser among girls	0.006	low = 0.001, high = 0.011	Normal: mean = 0.006, SD = 0.003	Schwartz et al., 2016
Annual medical cost of adult overweight	\$350	low = \$200, high = \$500	Normal: mean = \$350, SD = \$50	Finkelstein et al., 2003; Dor et al., 2010; Tsai et al., 2011; U.S. Bureau of Labor Statistics, 2016
Annual medical cost of adult obesity	\$1500	low = \$1000, high = \$2000	Normal: mean = \$1500, SD = \$167	Tsai et al., 2011; U.S. Bureau of Labor Statistics, 2016; Finkelstein et al., 2009; An, 2015
Percent of medical cost of adult overweight/obesity over total economic cost	43.5%	low = 41%, high = 46%	Normal: mean = 43.5%, SD = 0.83%	Dee et al., 2014
Probability of an overweight boy to become an overweight adult	48.8%	low = 40%, high = 64%	Normal: mean = 48.8%, SD = 4%	Guo & Chumlea, 1999; Guo et al, 2002
Probability of an overweight girl to become an overweight adult	35.2%	low = 25%, high = 48%	Normal: mean = 35.2%, SD = 3.83%	Guo & Chumlea, 1999; Guo et al., 2002
Probability of an overweight boy to become an obese adult	18.2%	low = 14%, high = 22%	Normal: mean = 18.2%, SD = 1.33%	Guo & Chumlea, 1999; Guo et al., 2002
Probability of an overweight girl to become an obese adult	24.2%	low = 20%, high = 32%	Normal: mean = 24.2%, SD = 2%	Guo & Chumlea, 1999; Guo et al., 2002
Age since economic cost of adult overweight/obesity accumulates	35 years old	low = 30, high = 40	Normal: mean = 35, SD = 1.67	Finkelstein et al., 2003; Dor et al., 2010; Tsai et al., 2011; Finkelstein et al., 2009; An, 2015; Trogdon et al., 2008; Dee et al., 2014
Purchase cost of school water dispenser	\$3000	low = \$2500, high = \$3500	Normal: mean = \$3000, SD = \$167	Elbel et al., 2015; Schwartz et al., 2016
Lifetime maintenance cost of school water dispenser	\$7500	low = \$7000, high = \$8000	Normal: mean = \$7500, SD = \$167	Elbel et al., 2015; Schwartz et al., 2016
Prevalence of adult overweight among males	37.8%	fixed	fixed	Ogden et al., 2014
Prevalence of adult overweight among females	29.7%	fixed	fixed	Ogden et al., 2014
Prevalence of adult obesity among males	33.5%	fixed	fixed	Ogden et al., 2014
Prevalence of adult obesity among females	36.1%	fixed	fixed	Ogden et al., 2014
Number of public and private schools in the U.S.	129,189	fixed	fixed	U.S. Department of Education, 2015
Number of students enrolled in public and private schools in the U.S.	75,227,000	fixed	fixed	U.S. Department of Education, 2015