Parents and Child Obesity

Izzy Fairman, Katie Prescott, Kristi Garino, Max Panoff, Sam Alpaugh

Introduction

- Obesity is a growing problem
- While adults may be harder to inform and change their habits, children are still young and easier to teach
- Our intervention project is to
  - Promote healthy eating to children in school and their families
- This intervention will be accomplished by
  - Informational sessions for children in their classes
  - informational /cooking classes for adults
    - Groceries and recipes provided after the class
    - No groceries and recipes provided after the class

Healthy Eating at Schools

Interventions: A school food program that is first free, then you have to pay for school lunch again. Control = no school food program

- 4 intervention schools and 4 control schools in Denmark. Baseline control and intervention groups were identical with about equal meal IQ and demographics
- IV: Free school lunch, or packed lunch
- DV: Meal IQ of lunches
- Results: When the school offered free lunch the meal IQ went up

Study by: Marianne Sønderby Sabinsky, 2013

Health Promotion in Schools

Schools had to enforce a healthy eating policy.

- Lunch and snack time choices were seen to be healthier
- Healthier choices in school, however outside of school this trend was not reported
- Improvements in self esteem and psychological health

Study by: D Lister-Sharp, S Chapman, S Stewart-Brown, and A Sowden, 1999

Healthy Eating in Belgian Middle Schools

3 Behavior Changes: Increasing fruit consumption to at least 2 pieces a day, reducing soft drink consumption and increasing water consumption, and reducing fat intake.

- Participants: 2840 boys and girls aged 11– 15 years within 15 schools in West-Flanders Belgium
- IV: Intervention with or without parental support, or a control group
- DV: Fat intake, fruit consumption, soft drink consumption
- Results: Fat intake significantly decreased in girls with parental support, but there were no significant changes in boys.

Study by: L. Haerens, I. Bourdeaudhuij, L. Maes, C. Vereecken, J. Brug, and B. Deforche1, 2006

Table 2 Pre- and post-intake levels (mean ± SD) and *F*-values for effects of a healthy diet intervention

Condition		Pre	Post	$F_{Condition}$	$F_{Condition \times gender}$	$F_{Condition}$ Boys	$F_{Condition}$ Girls
Fat intake (g day^{-1})	I + P	111 ± 48	105 ± 49	1.3	2.4(*)	1.4	9.3***
	I	130 ± 54	127 ± 56				
	C	108 ± 46	104 ± 45				
% energy from fat	I + P	38.7 ± 16.3	35.1 ± 16.1	1.4	2.4(*)	0.7	9.0***
	I	43.7 ± 18.1	40.2 ± 17.8				
	C	39.4 ± 16.2	36.7 ± 15.7				
% > fat recommendations	I + P	65.5 ± 47.6	54.2 ± 49.9	2.8	1.5	NA	
	I	74.1 ± 43.8	66.4 ± 47.3				
	C	67.7 ± 46.8	61.0 ± 48.8				
Fruit intake (pieces week^{-1})	I + P	5.3 ± 5.3	5.4 ± 5.3	0.2	1.1	NA	
	I	4.6 ± 5.0	4.4 ± 4.7				
	C	6.5 ± 5.0	6.0 ± 4.9				
% < fruit recommendations	I + P	85.8 ± 34.9	84.3 ± 36.4	0.5	0.78	NA	
	I	88.0 ± 32.5	89.3 ± 30.9				
	C	80.3 ± 39.8	82.1 ± 38.3				
Soft drinks (glasses day^{-1})	I + P	3.1 ± 2.4	3.1 ± 2.5	2.6	0.9	NA	
	I	3.5 ± 2.5	3.9 ± 2.8				
	C	2.5 ± 2.2	2.6 ± 2.4				
Water (glasses day^{-1})	I + P	3.4 ± 2.7	3.7 ± 2.8	0.3	0.3	NA	
	I	3.1 ± 2.7	3.5 ± 2.9				
	C	3.7 ± 2.6	4.0 ± 2.8				

SD – standard deviation; I + P – intervention with parental support ($n = 1055$); I – intervention alone ($n = 685$); C – control group ($n = 655$); NA – not applicable because $F_{Condition \times gender}$ was not significant.
(*), $P < 0.09$; ***, $P < 0.001$.

Reducing Obesity via School Based Interventions

Interventions: Reduce television viewing, decrease fat intake, increase fruit and vegetable consumption, and increase physical activity

- Participants: 1295 6th/7th grade Massachusetts public school students.
- IV: Interventions in school or usual health curricula
- DV: Obesity rates
- Results: Obesity rates at the intervention schools were significantly decreased among girls as compared with the control schools. There was no significant change among boys.

Study by: S. Gortmaker, K. Peterson, J. Wiecha; et al, 1999

Policy-Based School Intervention to Prevent Obesity

This intervention measured fat intake, fruit and vegetable consumption, physical activity, sedentary behaviors, and body image.

- Participants: 1349 K-8th grade students from the Mid-Atlantic region, many eligible for free or reduced-price meals.
- IV: School self-assessment, nutrition education, nutrition policy, social marketing, and parent outreach
- DV: Obesity prevalence
- Results: Prevalence of obesity was significantly decreased in the intervention schools as compared to the control schools.

Study by: G. Foster, S. Sherman, K. Borradaile, K. Grundy, S. Vander Veur, J. Nachmani, A. Karpyn, S. Kumanyika, J. Shults, 2008

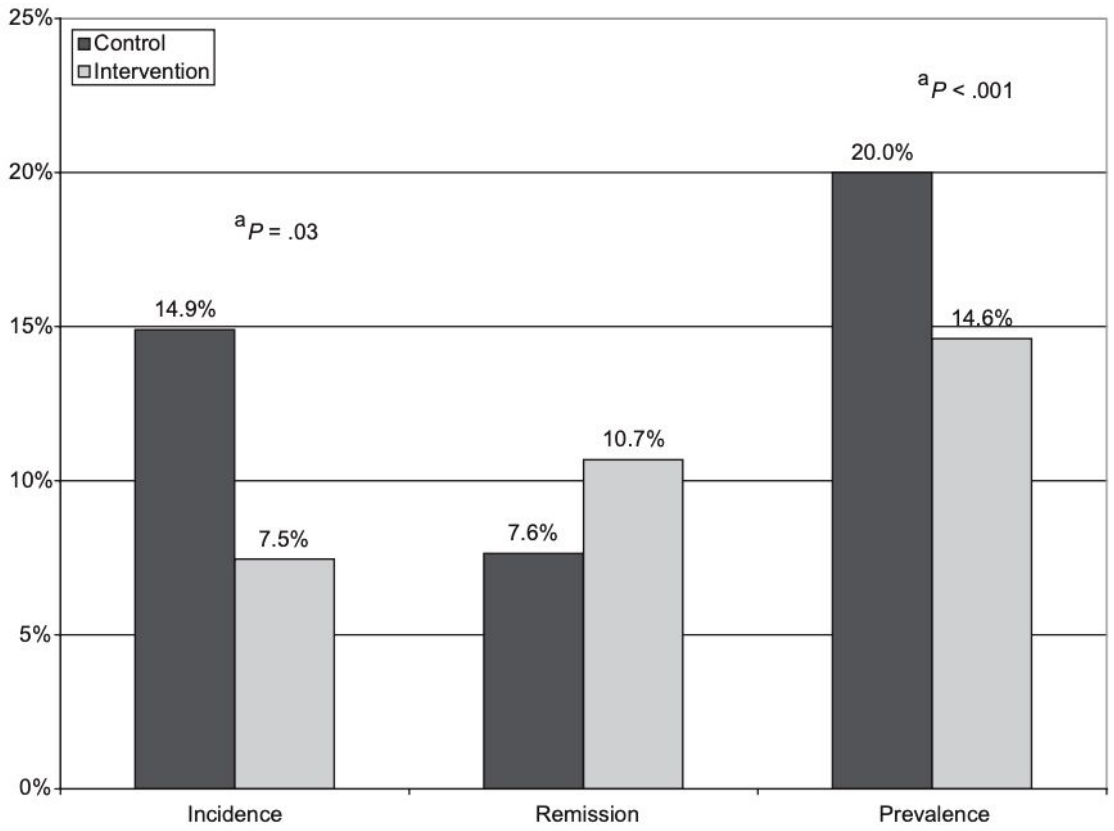


FIGURE 1

Unadjusted incidence, remission, and prevalence of overweight (85.0th–94.9th percentiles) at 2 years. [a] Statistically significant differences between the intervention and control schools after controlling for race/ethnicity, gender, age, and baseline prevalence for the prevalence outcome.

Research Improvements

Methodology flaws to fix:

- Rely on self-assessment questionnaires, which can be inaccurate.
- Many do not track health behaviors at home.
- Don’t evaluate health behaviors of parents and the influence parents have on their children’s health behaviors.
- Don’t evaluate readiness to continue practicing good health behaviors on their own.

Methodology of our intervention

- How are parents influencing their children's diet
  - If we educate them on how to prepare a balanced meal, will their children eat better?
- Is educating the parents is more effective than other school programs that are targeted towards children

Methodology of our intervention

- Before the study begins, send out a questionnaire to gain baseline knowledge of how they currently eat, demographics (SES, race, ethnicity, etc), and BMI
- Invite the parents to a cooking class/educational session about well-balanced meals and how to prepare them
- Control: no intervention at all, no resources provided, no cooking class

Methodology of our intervention

- IV: resources that the parents have following the class
  - Only attend the class and are responsible for preparing all future meals on their own
  - Provide ingredients & recipes for them afterwards
- DV: What are they eating after the intervention stops?
  - Follow up with the families of all three treatments to see how the diets of the children have changed or not

Our Predictions: Food Desert Research

- Look at other studies that have components that match
- Areas with no access to grocery stores, only restaurants
  - Implies unhealthy food
  - Found in low income areas
- Adding supermarkets didn't change diets
  - Preference was still for other food
  - May have been cost, healthy food was more expensive

Our Predictions: Reduced Cost

- Several studies have been done on subsidies for healthy food
  - Results are inconclusive
  - People definitely say they buy more healthy food under them, and SNAP purchasing confirms this
  - Other studies have conflicting data, says more people buy fruit, but don't eat it

Our Predictions: Schools

- Many previous studies have shown that intervention at a scholastic level is effective
- Involves a range of students,
  - With multiple schools, it can be easier to implement random selection
  - Though still some issues with this
- The class theme fits well, and may increase parental involvement

Our Predictions: Parental Support

- Studies have shown that parent support in changing diets has a large impact
  - Students were asked to measure and control amounts of fruit, fat, water, and soft drink intake
  - Either had parental support to lower intake or lacked it
  - Effective for female students, not very effective for male students

Our Predictions: Summation

- We believe that when all these factors combined, we will see significant changes
  - We have covered for some of the issues that previous studies have seen
  - The extended period hopefully will instill familiarity with ingredients and change habits
  - This will still most likely be more effective for girls than boys, due to the parent's role, but we expect this to be less pronounced than the other study

Potential Roadblocks

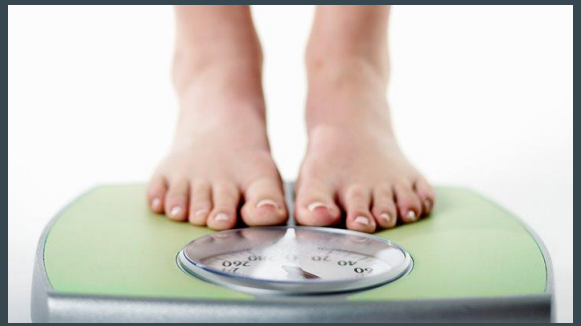
- Children may still overeat at home
  - Teach importance of healthy eating throughout the day
- People tend to become disinterested in their healthy eating plans over time
  - Set small, measurable goals
- Parents may be unwilling
  - Provide children with healthy meals at lunch and then give them the recipes to bring home

Individual and Societal Impact

- Reduced risk of heart disease
  - Obesity one of leading causes of heart disease
- Reduced risk of cancer
- Better manage diabetes
- Increased life expectancy
- Healthcare costs
  - $147-$200 billion annually

Conclusion

- Obesity is a problem that deserves to be addressed
- Our project is targeted at children so that they develop healthy habits at a young age
  - Also targets parents of the children to provide healthy food at home
- Research shows that in school interventions are successful at causing children to lose fat
  - Particularly girls



Sources

http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.709.6363&rep=rep1&type=pdf
https://www.ncbi.nlm.nih.gov/books/NBK67984/
https://www.cambridge.org/core/journals/public-health-nutrition/article/effects-of-a-middleschool-healthy-eating-intervention-on-adolescents-fat-and-fruit-intake-and-soft-drinks-consumption/C02C9F03F5CBC26DBEF8F6FE4D6DA7AB
https://jamanetwork.com/journals/jamapediatrics/fullarticle/346206
https://pdfs.semanticscholar.org/92c7/84074b4f9ee23163f36b4aefa8b7628b61e2.pdf?_ga=2.234332574.1804065601.1543960236-859967356.1543960236
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4544036/
https://fns-prod.azureedge.net/sites/default/files/ops/HIP-Final-Summary.pdf
https://www.ncbi.nlm.nih.gov/pubmed/26054549
https://www.nber.org/papers/w21126
https://www.cdc.gov/healthcommunication/toolstemplates/entertainmented/tips/FoodDesert.html