

Lessons in a Box Make a Difference for Head Start Youth

Abstract

This article examines the health education implications of targeted nutrition lesson plans at Head Start programs in south central Minnesota. The Head Start program in Mankato and the University of Minnesota Extension collaborated to deliver and evaluate a nutrition education program directed at preschool children and their families. Nine lesson plans on various nutrition topics were developed and delivered to Head Start preschoolers. The program goals were to increase nutrition-related knowledge among children, improve healthy eating patterns/preferences, and increase physical activity. The evaluation intended to determine program effects and participant changes towards healthy eating habits.

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Introduction

More than one in five U.S. preschoolers are overweight or obese, putting them at higher risk for future chronic health problems (Daniels, 2009; Kemirembe, Radhakrishna, Gurgevich, Yoder, & Ingram, 2011; Lanigan & Power, 2008). In order to address these issues, the Head Start program in south central Minnesota and the University of Minnesota Extension collaborated to deliver and evaluate a nutrition education program directed at preschool children and their families. The main goal was to improve the healthy eating preferences, physical activity, and knowledge of health promoting behaviors among participants.

Program Overview

The health and nutrition program titled "Lessons in a Box" included four components, two mainly educational and two additional supporting resources. First, Head Start youth received nine interactive lessons, 20 minutes each, delivered once a month for 9 months. The lessons were led by Community Nutrition Educators (CNE). Content was coordinated among CNE and Head Start nutrition coordinators and included: Germs and Hand-washing, MyPyramid, Keeping Foods Safe, Fruits and Vegetables, Protein, Dairy, Grains, Physical Activity, and Eating Healthy Snacks. The lessons were based on the Simply Good Eating core curriculum (Gromberg & Wells, 2006; Van Offelen, Schroeder, Leines, Roth-Yousey, & Reicks, 2011), as well as MyPlate (USDA, 2012). The second program component involved an assessment of youth done with the parent/caregiver to determine potential areas of health concern, which would lead to the distribution of recommended nutritional pamphlets. Third, newsletters, including nutrition information, were distributed to all parents/caregivers of participating youth. And fourth, Head Start main classroom teachers were asked to review and reinforce the nutrition lesson of the month.

Methods

The evaluation process was twofold. First, structured interviews with parents/caregivers of participating youth were scheduled at baseline and post-test. Second, researchers assessed participant BMI at two points in time. The interviews were led by a trained parent advocate and aimed to assess youth eating behaviors, eating patterns, physical activity, family food security, and food intake (including dairy, fruits and vegetables, meat and proteins, snacks, and treats). Advocates measured the preschoolers' heights and weights to collect data on their growth chart (Centers for Disease Control) and Body Mass Index (BMI) percentiles. A dietitian provided guidance to determine if participants should be given nutritional pamphlets or referred to other resources. Advocates accommodated Spanish and Somali language preferences through use of interpreters during data collection. Data was analyzed with McNemar's test and paired t-tests using SPSS v.20.

Results

Participating youth ($n=466$) were comprised of 47% female ($n=217$) and 53% male ($n=249$). Parental reports of concerns about youth eating patterns and food intake are reported in Tables 1 and 2. Although there was no significant difference between pre-test and post-test, $\chi^2(2, N = 434) = 2.25, p = .134$, parental concern about youth eating patterns decreased from 7.8% to 5.5% by the end of the course. In addition, there was a group difference in their child's intake of vegetables for baseline between the group reporting concerns about their child's eating patterns and the groups without concerns at posttest, $F(1, 438) = 3.904, p = .049$. Specifically, the children of parents with concerns about youth eating pattern ($M = 3.72, SD = 1.14$) ate vegetables less than the children of parents without concerns ($M = 4.13, SD = .99$) at baseline. However, there was no group difference in intake of vegetable for post-test, $F(1, 430) = .890, p = .346$. Also, there was a group difference in their child's intake of meats and proteins for baseline between the group with concerns about their child's eating patterns and the groups without concerns at posttest, $F(1, 433) = 6.912, p = .009$. The children of parents with concerns about youth eating pattern ($M = 3.79, SD = .93$) ate less meats and proteins than the children of parents without concerns ($M = 3.99, SD = .94$) at baseline. However, there was no group difference for post-test, $F(1, 427) = 1.008, p = .316$.

Concerns about youth food intake also did not show significant change, $\chi^2(2, N = 402) = 1.306$, $p = .253$, but decreased from 9.2% to 7.0%.

Table 1.

Cross-Tab Comparing Baseline and Post-Test Responses, Have Concerns About Child's Eating Patterns

		Post Test - Have concerns about child's eating patterns		Total
		yes	no	
Baseline - Have concerns about child's eating patterns	yes	11	23	34 (7.8%)
	no	13	387	400 (92.2%)
Total		24 (5.5%)	410 (94.5%)	434 (100.0%)

Table 2.

Cross-Tab Comparing Baseline and Post-Test Responses, Have Concerns About Child's Food Intake

		Post Test - Have concerns about child's food intake		Total
		yes	no	
Baseline - Have concerns about child's food intake	yes	8	29	37 (9.2%)
	no	20	345	365 (90.8%)
Total		28 (7.0%)	374 (93.0%)	402 (100.0%)

Participants showed significant decreases in intake of fast foods, fats, and combination foods (Table 3). Both females and Hispanic/Latinos showed larger magnitude changes in frequency of fat consumption than their counterparts. Youth classified as overweight or obese initially saw the largest decrease in both fast food and fatty food consumption compared to those in healthy or underweight categories.

Table 3.

T-Test Results Comparing Baseline and Post-test Scores.

	Baseline		Post-Test		<i>t</i>	<i>df</i>	<i>p</i>	95 % CI	
	M	SD	M	SD				LL	UL
Fast foods	1.57	0.77	1.49	0.71	2.08	406	.038	0.00	0.16
Fats	3.21	1.20	2.90	1.22	4.28	382	.000	0.16	0.44
Combination foods	2.92	1.07	2.73	0.95	3.27	425	.001	0.07	0.30

Along with these behavior changes, there were participant shifts towards healthier BMI categories. There was a shift in 77% of underweight youth moving to a healthy BMI category at post-test, as well as 28% of youth in the obese category shifting to an overweight or healthy percentile. Baseline scores indicated most youth were already in the healthy BMI percentiles (242/460 or 52.6%), but after this class there were even more youth in the healthy category (255/460 or 62.3%).

Discussion

Healthy eating habits can be influenced at an early age (Hesketh & Campbell, 2010; Larson, Ward, Neelon, & Story, 2011; Ogden, Carroll, Kit, & Flegal, 2012) (Hesketh & Campbell, 2010; Ogden, Carroll, Kit, & Flegal, 2012). Participating youth were able to make changes towards healthier eating behaviors after receiving education and support over nine months. Not only did they improve their eating habits, but many also experienced shifts towards a healthier BMI percentile.

While many children and parents already reported healthy eating habits prior to the course, trends of improvement were seen in those groups with less desirable health behaviors. Furthermore, decreased concerns about eating patterns and food intake in parents of participating youth could potentially indicate that parents had a better understanding of healthier eating habits after this course. The shift in weight categories as well as decreased consumption of fats and fatty food also indicates improved dietary and health habits over all (Baranowski et al., 2000; Ledoux, Hingle, & Baranowski, 2011).

A limitation of the study was the ceiling effect, in which a limited number of questions may cause no statistically significant change in some responses. BMI percentile is also limited because it cannot determine changes in body composition. Due to the pilot nature of the study, a control group was not obtained. Addressing these limitations may provide statistically significant results that can be directly attributed to this program.

Conclusion

Early nutrition education to promote healthy eating behavior can be a successful strategy for preventing health complications among young children. The results suggest the Lesson in a Box program is especially beneficial for Head Start youth who are at the highest risk for future nutrition-related health complications. Even though the data showed limited statistically significant findings, especially when looking at the aggregate data, there were clear trends moving in the desired direction. A second year of data is being collected to further understand program outcomes.

References

- Baranowski, T., Mendlein, J., Resnicow, K., Frank, E., Cullen, K. W., & Baranowski, J. (2000). Physical activity and nutrition in children and youth: an overview of obesity prevention. *Preventive Medicine*, 31(2), S1-S10.
- Daniels, S. (2009). Complications of obesity in children and adolescents. *International Journal of Obesity*, 33, S60-S65.
- Gromberg, J., & Wells, D. (2006). Simply Good Eating For Health. *University of Minnesota Extension Service Miscellaneous Publication MI-08023*.
- Hesketh, K. D., & Campbell, K. J. (2010). Interventions to prevent obesity in 0–5 year olds: an updated systematic review of the literature. *Obesity*, 18, S27-S35.
- Kemirembe, O. M. K., Radhakrishna, R. B., Gurgevich, E., Yoder, E. P., & Ingram, P. D. (2011). An evaluation of nutrition education program for low-income youth. *Journal of Extension* [On-line], 49(3) Article 3RIB5. Available at: <http://www.joe.org/joe/2011june/rb5.php>
- Lanigan, J., & Power, T. (2008). Obesity prevention and health promotion: How family life educators view their role. *Journal of Extension* [On-line], 46(6) Article 6FEA5. Available at: <http://www.joe.org/joe/2008december/a5.php>
- Larson, N., Ward, D. S., Neelon, S. B., & Story, M. (2011). What Role Can Child-Care Settings Play in Obesity Prevention? A Review of the Evidence and Call for Research Efforts. *Journal of the American Dietetic Association*, 111(9), 1343-1362.
- Ledoux, T., Hingle, M., & Baranowski, T. (2011). Relationship of fruit and vegetable intake with adiposity: a systematic review. *Obesity Reviews*, 12(5), e143-e150.
- Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2012). Prevalence of obesity and trends in Body Mass Index among US children and adolescents, 1999-2010. *JAMA: The Journal of the American Medical Association*, 307(5), 483-490.
- USDA. (2012). *ChooseMyPlate.gov Website*. Washington, DC.: Retrieved from: <http://www.choosemyplate.gov>
- Van Offelen, S. J., Schroeder, M. M., Leines, D. A. R., Roth-Yousey, L., & Reicks, M. M. (2011). Go wild with fruits and veggies: Engaging children in nutrition education and physical activity with animal characters. *Journal of Extension* [On-line], 49(2) Article 2RIB6. Available at: <http://www.joe.org/joe/2011april/rb6.php>

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