

## **Healthy Kansas Kids (HKK) Outcome Evaluation Report**

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## Background Information and Description

The Kansas Association of Child Care Resource and Referral Agencies established the Infant/Toddler (I/T) Project in 1999. The I/T Project provides support services to both regulated and registered child care providers who care for, or are considering caring for, infants and/or toddlers in Kansas. Support services include one-on-one coaching, professional development events, resource materials, and public awareness activities. The I/T Project has two goals: 1) to improve the quality of child care offered to infants and toddlers, and 2) to increase the availability of infant and toddler child care. The services are delivered by 23 Infant/Toddler Specialists located in 15 Child Care Resource and Referral Agencies (R&Rs) throughout Kansas.

To provide a focused and intensive support service, the Infant/Toddler Project developed an enhanced coaching service called EXcellent Care for Early Learning (EXCEL). Child care providers are selected to enroll in EXCEL by the local Child Care Resource and Referral Agency using a competitive application process. Five to fifteen child care professionals in each R&R service delivery are selected to participate in this 12-month service. During 2006-2007, 115 child care professionals were selected to participate in EXCEL which was supported by a specially funded project named Healthy Kansas Kids focusing on obesity prevention through physical activity and nutrition. Funding for Healthy Kansas Kids was provided by United Methodist Health Ministry Fund.

The Infant/Toddler Specialists serve as formal mentors/coaches to new and experienced child care providers. These coaching services are completed in-person at the child care facility, at professional development events, through written communication, and by telephone. Infant/Toddler Specialists receive specialized training from a state level Project Director and experts in the fields of nutrition and physical activity. Each of the 23 I/T Specialists attend an Orientation on the Healthy Kansas Kids grant, train-the-trainer events on each of the six specially developed curricula, and regular conference calls on developing their coaching skills. I/T Specialists also work in communities to raise awareness of infant and toddler child care issues with civic, educational and business leaders.

The Healthy Kansas Kids participation requirements for EXCEL enrollment include a minimum of 8-10 on-site visits with the Infant/Toddler Specialist, attendance at 6-12 hours of professional development, and a written coaching and program improvement plan. Baseline assessments using the Infant Toddler Environment Rating Scale or the Family Day Care Rating Scale and the Nutrition and Physical Activity Self Assessment for Child Care (NAPSACC) are used to develop a program improvement plan.

Incentives for each EXCEL participant include free registration to the required professional development events, a \$750.00 grant for program improvements in nutrition and physical activity in their child care setting, incentives to use in the child care setting such as children's books on activity and nutrition, activity kits to check-out to families, and curriculum resources. Each EXCEL participant is also invited to participate in a one-day kick-off event called the "Self-Care Workshop" to focus on improving their own health habits.

## Evaluation

To evaluate the impact of the Healthy Kansas Kids (HKK) program on policies and practices related to physical activity and healthy eating, child care providers participating in the EXCEL Program completed a previously validated assessment tool – the Nutrition and Physical Activity Self Assessment for Child Care, or NAPSACC, before and after program implementation (1).

The NAPSACC instrument evaluates the following nutrition areas 1) Fruit and vegetable consumption, 2) Fried foods and high fat meats; 3) Beverages; 4) Menus and variety; 5) Meals and snacks at the Center/Home; 6) Foods offered outside of regular meals and snacks; 7) Supporting healthy eating; 8) Nutrition education for children and parents, and 9) Nutrition policy. For Physical activity the audit tools evaluates 1) Active play and inactive time; 2) TV use and TV viewing; 3) Play environment; 4) Supporting physical activity; 5) Physical activity education for children and parents; and 6) Physical activity policy.

Responses to each item on the NAPSACC were recorded on 4-point Likert scales. While the wording of the responses varied by content area, the response of “1” was indicative of barely meeting child care standards; “2” was indicative of meeting child care standards; “3” was indicative of exceeding child care standards; and “4” was indicative of far exceeding child care standards and using best practice. A total NAPSACC score was calculated by averaging the responses to all 58 items, while NAPSACC scores for nutrition and physical activity were calculated by averaging the responses for the 9 nutrition and 6 physical activity content areas, respectively. Scores were also calculated for each of the 15 content areas.

A total of 82 EXCEL providers completed pre-program NAPSACC assessments. Of this number, 60, completed post program assessments. Pre to post changes were evaluated for statistical significance using t-tests for matched samples. Of note, changes in the NAPSACC outcomes were evaluated using an “intent-to-treat” analysis which conservatively assumed no change in 22 EXCEL providers who did not complete the post-assessment (i.e., pre-test scores are substituted for post-test scores).

To determine if changes were the result of secular change in the state of Kansas or other education programs or initiatives in the state, pre- and post-program NAPSACC data from the EXCEL providers were compared to NAPSACC data obtained from two random samples of child care providers from the state of Kansas. Survey administration for these providers coincided with the pre and post assessments for the EXCEL Program.

For the baseline comparison sample, 400 licensed or registered child care providers were randomly selected from the most recent KACCRRRA data base of all regulated child care providers in Kansas. The sample was stratified by R&R region and providers within each R&R were sampled with a probability proportional to the total number of providers in the R&R service delivery area. The 400 randomly selected providers were mailed the NAPSACC survey along with a cover letter and a prepaid return envelope. 174 providers completed the NAPSACC surveys, yielding a response rate of 43.5%.

For the follow-up or post comparison sample, another set of 400 licensed or registered child care providers were randomly selected from the KACCRRRA data base using the same sample selection and survey distribution methodology. 123 providers completed and returned the NAPSACC surveys, yielding a response rate of 30.8%. Comparisons between the EXCEL providers and the providers completing the statewide survey were evaluated for statistical significance using t-tests for independent samples.

The impact of the HKK program on total NAPSACC scores and the nutrition and physical activity NAPSACC scores are displayed in Figures 1 through 3.

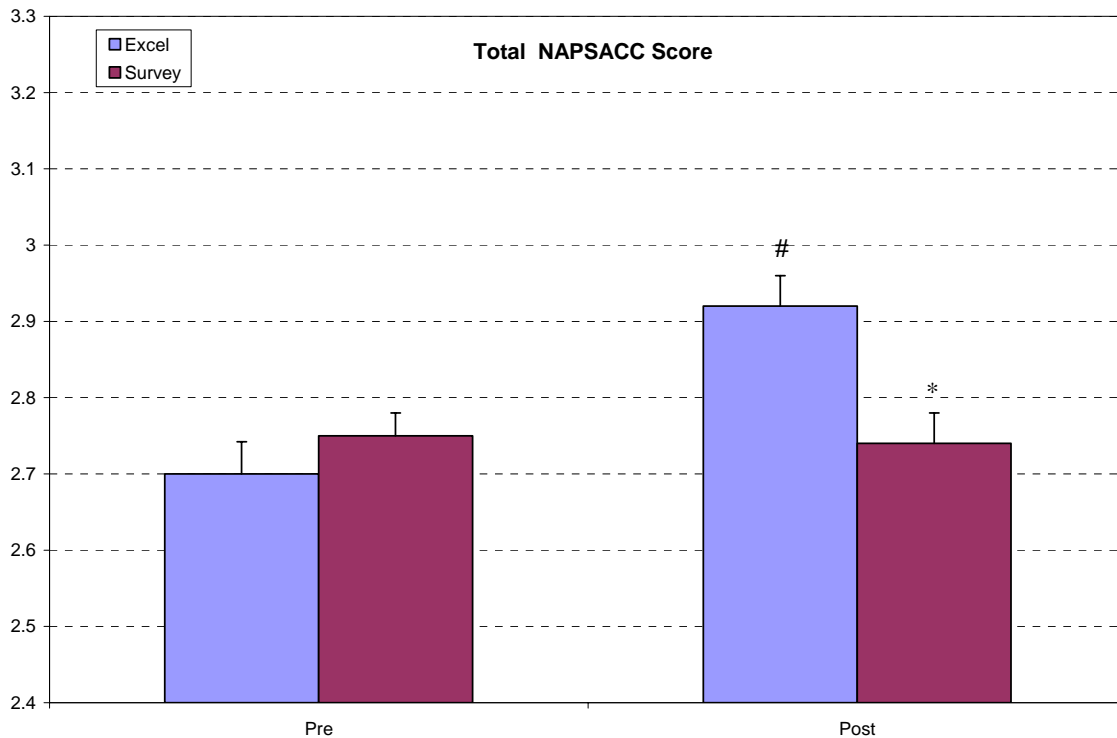


Figure 1. Pre to post changes in total NAPSACC scores relative to control samples.

# denotes significant pre to post change in EXCEL participants ( $p < .05$ )

\* denotes significant difference between EXCEL post scores and post survey scores

Total NAPSACC scores for the EXCEL participants increased significantly from pre to post, increasing from 2.7 to 2.9, a change of approximately 7.5%. Pretest scores for the EXCEL participants were not significantly different from the pretest comparison sample, and there were no significant differences between the pre and post comparison samples. Post scores for the EXCEL participants were significantly higher than those recorded in the post score comparison sample.

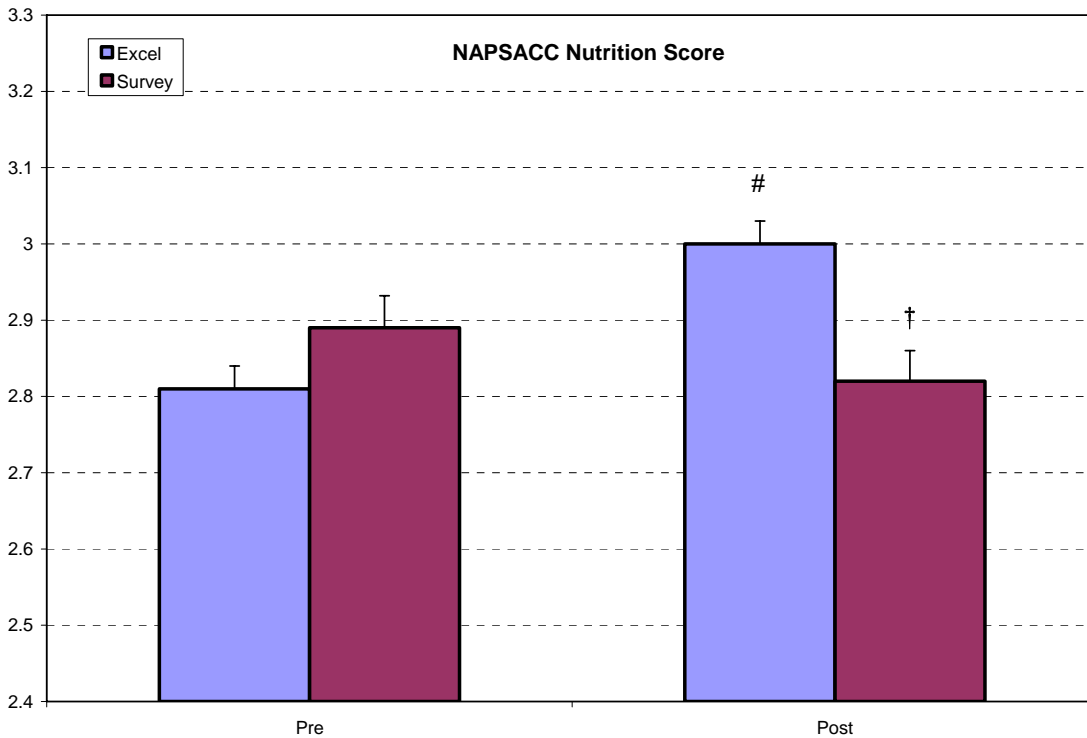


Figure 2. Pre to post changes in NAPSACC nutrition scores relative to control samples.

# denotes significant pre to post change in EXCEL participants ( $p < .05$ )

† denotes marginally significant difference between EXCEL post scores and post survey scores ( $p = .09$ )

Nutrition scores for the EXCEL participants increased significantly from pre to post, increasing from 2.8 to 3.0, a change of approximately 7%. Although marginally lower, pretest scores for the EXCEL participants were not significantly different from the pretest comparison sample, and there were no significant differences between the pre and post comparison samples. Post scores for the EXCEL participants were higher than those recorded in the post-test comparison sample; however, this difference was not significant at the 0.05 level ( $p = 0.09$ ).

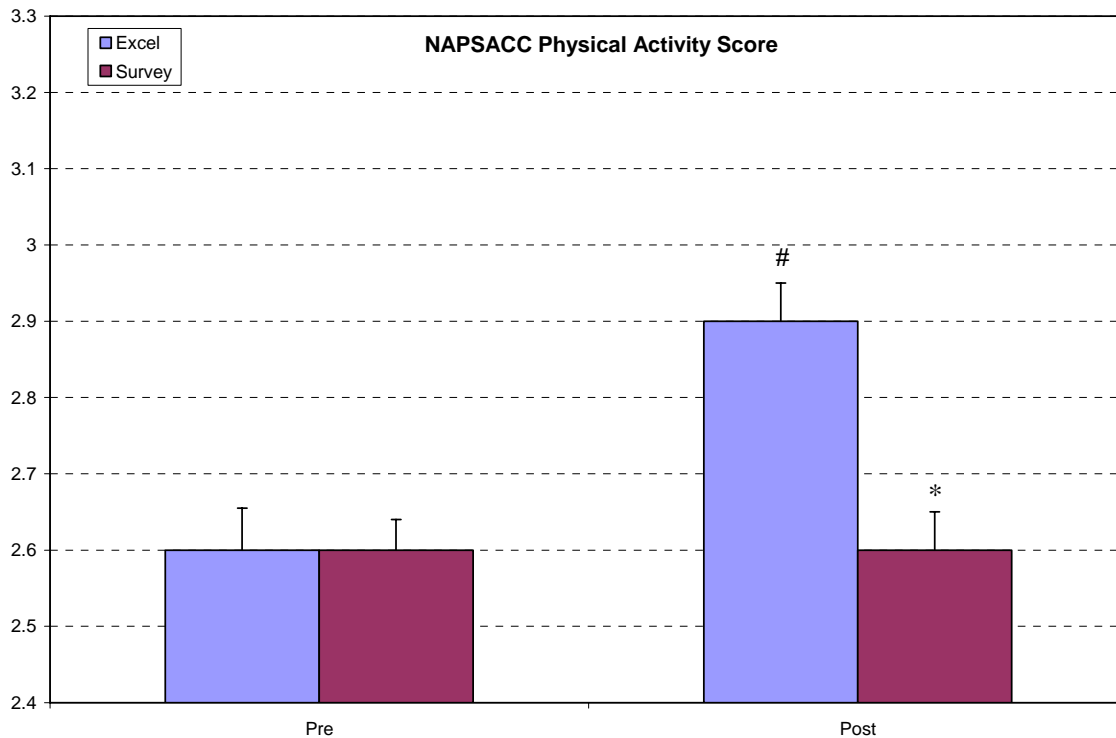


Figure 3. Pre to post changes in total NAPSACC scores relative to control samples.

# denotes significant pre to post change in EXCEL participants ( $p < .05$ )

\* denotes significant difference between EXCEL post scores and post survey scores

Physical activity scores for the EXCEL participants increased significantly from pre to post, increasing from 2.6 to 2.9, a change of 11.5%. Pretest scores for the EXCEL participants were not significantly different from the pretest comparison, and there were no significant differences between the pre and post comparison samples. Post scores for the EXCEL participants were substantially and significantly higher than those recorded in the post score comparison sample.

To examine the impact of the HKK program on specific content areas, pre to post changes for the 9 nutrition and 6 physical activity content areas were evaluated for significance. As there were no significant differences between the pre comparison and post comparison surveys on the content scores, responses to the two surveys were combined and compared to the post-test scores of the EXCEL participants. The results are displayed in Table 1.

**Table 1. NAPSACC Scores for the 9 nutrition and 6 physical activity content areas.**

<b>Content Area</b>	<b>Comparison Sample</b>	<b>EXCEL Pre</b>	<b>EXCEL Post</b>	<b>% Change</b>	<b>Change p-value</b>	<b>Comp. p-value</b>
Fruits and Vegetables	3.2 ± 0.4	3.2 ± 0.4	3.3 ± 0.4	3.1%	0.02	0.006
Fried Foods and High Fat Meats	3.1 ± 0.4	3.0 ± 0.5	3.2 ± 0.4	6.7%	0.02	0.51
Beverages	3.0 ± 0.5	2.9 ± 0.5	3.0 ± 0.4	3.4%	0.09	0.69
Regular Meals	3.7 ± 0.3	3.6 ± 0.4	3.8 ± 0.2	5.6%	0.02	0.02
Menus and Variety	2.5 ± 0.6	2.4 ± 0.6	2.6 ± 0.6	8.3%	0.002	0.19
Foods Outside of Regular Meals and Snacks	2.1 ± 0.7	2.0 ± 0.7	2.2 ± 0.7	10.0%	0.003	0.81
Supporting Healthy Eating	3.0 ± 0.5	3.0 ± 0.6	3.2 ± 0.6	6.7%	0.002	0.05
Nutrition Education	2.6 ± 0.7	2.7 ± 0.7	3.0 ± 0.7	11.1%	0.001	0.001
Nutrition Policy	2.7 ± 1.5	2.3 ± 1.5	2.7 ± 1.4	17.4%	0.03	0.79
Active Play and Inactive Time	3.2 ± 0.5	3.3 ± 0.4	3.4 ± 0.4	3.0%	0.001	0.001
TV Use and TV Viewing	2.8 ± 0.8	2.8 ± 0.8	3.0 ± 0.7	7.1%	0.02	0.07
Play Environment	3.0 ± 0.6	2.8 ± 0.6	3.2 ± 0.5	14.3%	0.001	0.10
Supporting Physical Activity	2.4 ± 0.7	2.3 ± 0.7	2.7 ± 0.7	17.4%	0.001	0.001
Physical Activity Education	2.3 ± 0.8	2.3 ± 0.9	2.8 ± 0.9	21.7%	0.001	0.001
Physical Activity Policy	1.8 ± 1.3	1.8 ± 1.3	2.0 ± 1.3	11.1%	0.08	0.41

“Change p-value” - paired t-test evaluating pre to post change among EXCEL participants

“Comp. p-value” - independent t-test evaluating difference between EXCEL post scores and pooled random comparison sample scores.

EXCEL participants improved significantly in all content areas, with only the change scores for beverages and physical activity policy not reaching the 0.05 level of significance. However, although statistically significant, many of the changes for the nutrition content areas were modest (3-6%). Notable exceptions to this trend were the scores for nutrition education, nutrition policy, and foods outside regular meals and snacks, which increased by 10% or greater. Change for the physical activity content areas were generally greater in magnitude than those observed for the nutrition outcomes, with substantial changes occurring for play environment, supporting physical activity, and physical activity education (14-22%).

For the nutrition outcomes, EXCEL post scores were significantly higher than the statewide comparison survey for fruit and vegetable consumption, supporting healthy eating, and nutrition education. For the physical activity outcomes, EXCEL post scores were significantly higher than the statewide comparison survey for activity play an inactive time, supporting physical activity, and physical activity education. Because EXCEL providers exhibited somewhat lower scores than the state average for nutrition policy, fried foods and high fat meats, and play environment at baseline, the significantly improved post scores for these outcomes were not significantly different from the statewide comparison sample.

### **Key Findings**

- The HKK program resulted in small but significant improvements in nutrition and physical activity policies and practices.
- Improvements in physical activity practices were generally greater than those observed for nutritional practices. This may be explained, in part, by the generally high baseline scores for the nutrition content areas and the fact that, historically, training in physical activity has received only limited attention.
- Nearly all content areas assessed by the NAPSACC instrument improved significantly, but the most dramatic changes took place in the following content areas – Menus and variety (8.3%), Foods outside of regular meals and snack (10.0%), Nutrition education for children and parents (11.1%), Nutrition policy (17.4%), Play environment (14.3%), Supporting physical activity (17.4%), Physical activity education for children and parents (21.7%), and Physical activity policy (11.1%).
- Providers scored higher than “2.0” on all 16 content areas, indicating that., on average, providers participating in the EXCEL program and the two statewide surveys were meeting existing child care standards for nutrition and physical activity. The only content areas not surpassing an average of score of 3.0 (exceeding child care standards) were Menus and variety, Foods outside regular meals and snacks, Nutrition policy, Supporting physical activity, Physical activity education, and Physical activity policy. These content areas could be targeted more specifically in future applications of the HKK program.
- While the evaluation design does not allow one to infer a causal relationship between the HKK program and the changes observed in NAPSACC scores, simultaneous comparisons with two random samples of child care providers in the state of Kansas

suggests that EXCEL participants were representative of family home child care providers in the state of Kansas, and that the observed favorable changes in nutrition and physical activity practices were not likely the result of a secular trend or other child care training initiatives in the state. The positive results of this evaluation suggest that a more expensive and rigorous evaluation design (pre-post control group design) would be justified.

Reference:

1. Benjamin SE, Neelon B, Ball SC, Bangdiwala SI, Ammerman AS, Ward DS. Reliability and validity of a nutrition and physical activity environmental self-assessment for child care. *International Journal of Behavioral Nutrition and Physical Activity* 2007;4:29.