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Oklahoma CATCH Kids Club

*2010-2011 Analysis of Gender, Race, and Ethnicity*

Oklahoma CATCH Kids Club

**2010-2011 Analysis**

The Coordinated Approach to Child Health (CATCH) Kids Club is an after-school-based curriculum designed to teach children about healthy food choices and physical activity habits. The ultimate goal is for children to reduce their risk of obesity and improve their overall health by increasing fruit and vegetable consumption and being more physically active while fostering healthy environments in which they learn and play.

The CATCH Kids Club (CKC) program has been part of numerous Oklahoma after-school programs since Fall 2007. The three-year pilot, conducted between Fall 2007 and Spring 2010, demonstrated improvements in physical activity participation; improved survey scores regarding food knowledge, behavior, preference, and self-efficacy; and reductions in body mass index (BMI). In its fourth year (2010-2011), CKC included 70 sites, 40 of which were included in this evaluation. Many of the remaining 30 sites participated in another evaluation conducted by Oklahoma State University.

Some changes were made to the evaluation process during Year 4. The student survey was updated to reflect changes in the program and modernized to include web-based survey distribution. Because of the successful results of the pilot, the goal for the amount of time spent doing moderate to physical activity was increased to 60% of physical activity time instead of 50%.

The purpose of this report is to provide a brief overview of the full Oklahoma CATCH Kids Club 2010-2011 analysis. The full report goes in depth into specific survey questions while this report focuses on composite scores and overviews of BMI changes. For the full report and specific data on individual questions, please visit <http://catch.health.ok.gov> and select the Annual Reports tab on the left side of the screen. The full link can be found at the end of this report.1 Grade-level information can be found in the full report.

## **Demographics**

A total of 361 students in grades 3 through 5 completed the CATCH survey in Fall 2010, and 352 students completed the survey in Spring 2011. The majority of students were female, White, and in 3rd grade for both time points (Table 1).

Table 1. Demographics of Students Who Completed the Survey

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Fall 2010 | | Spring 2011 | |
| Grade | **n** | **percent** | **n** | **percent** |
| 3rd | 157 | 43.5 | 144 | 40.9 |
| 4th | 128 | 35.5 | 137 | 38.9 |
| 5th | 76 | 21.1 | 71 | 20.2 |
| Age (years) |  |  |  |  |
| ≤ 8 | 105 | 29.1 | 39 | 11.2 |
| 9 | 112 | 31.0 | 116 | 33.2 |
| 10 | 106 | 29.4 | 114 | 32.7 |
| ≥ 11 | 38 | 10.5 | 80 | 22.9 |
| Sex |  |  |  |  |
| Male | 168 | 46.9 | 155 | 44.5 |
| Female | 190 | 53.1 | 193 | 55.5 |
| Race/Ethnicity |  |  |  |  |
| White | 166 | 48.7 | 144 | 42.5 |
| Black | 37 | 10.9 | 41 | 12.1 |
| Hispanic | 35 | 10.3 | 32 | 9.4 |
| American Indian | 74 | 21.7 | 102 | 30.1 |
| Other | 29 | 8.5 | 20 | 5.9 |

Note: Missing data include n=3 for Spring age; n=3 for Fall sex; n=4 for

Spring sex; n=20 for Fall race/ethnicity; n=13 for Spring race/ethnicity.

# **Survey Results**

### **Behaviors**

Fewer than 1 in 5 children were eating 5 or more servings of fruits and vegetables daily, and approximately 30% of children were drinking sufficient amounts of water Two in 5 children spent fewer than 3 hours on the computer, watching TV, or playing video games, and about 77% of children engaged in at least 20 minutes of physical activity on the previous day. From Fall to Spring, there were not many significant differences in specific behaviors; however, the composite score for food nutrition did increase significantly, with more than double the number of students engaging in at least 7 of 9 healthier food behaviors in the Spring compared to the Fall (Table 2).

Table 2. Percentage of Children Engaging in Specific Healthy Behaviors.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Total (%) | | Males (%) | | Females (%) | |
|  | **Fall** | **Spring** | **Fall** | **Spring** | **Fall** | **Spring** |
| Food Behavior (≥ 7 of 9 items) | **2.9†** | **7.0†** | 2.9 | 6.8 | 2.4 | 6.7 |
| Physical Activity Behavior (2 of 2 items) | 33.1 | 37.8 | 26.1 | 29.8 | 39.3 | 44.4 |

† indicates significant (p < 0.05) differences via Chi-Square from Fall to Spring.

### **Survey Results by Race/Ethnicity**

There were some differences in mean item scores among the various racial/ethnic groups in both the Fall and Spring. For instance, in the Fall, Black students were eating more fruits and vegetables, were more often drinking low fat or skim milk, and had higher mean composite scores for food behavior. American Indian students were better able to identify the recommended days per week a person should be physically active. In the Spring, Black students more often reported eating breakfast daily and ordering hamburgers instead of grilled chicken sandwiches from fast food restaurants. Hispanic students reported more difficulties being active and were less often able to identify the high-fiber cereal.

By race/ethnicity, the majority of changes from Fall to Spring were among White and Black students (Table 3). Differences among White students tended to be positive, while differences among Black students were negative. White students significantly improved in four food behavior items (eating more beans, eating fewer chips/fries, eating chicken without skin, and the composite score) and several physical activity items, including: one knowledge item (recommended amount of daily activity), one behavior (less screen time), and the confidence composite score. Conversely, Black students demonstrated poorer mean scores for two food knowledge items (servings of dairy and healthier snack choice) and three food behaviors (eating fewer fruits and vegetables, ordering a hamburger instead of a grilled chicken sandwich, the composite score). Black students improved their mean score for eating breakfast daily. They demonstrated no physical activity differences from Fall to Spring.

Hispanic students significantly improved mean scores in three food behaviors: eating breakfast every day, eating wheat instead of white bread, and eating chicken without the skin. No differences from Fall to Spring were demonstrated among American Indian students.

Table 3. Mean Scores for Individual and Composite Food Items by Race/Ethnicity.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Item | White | | Black | | American Indian | | Hispanic | |
|  | **Fall** | **Spring** | **Fall** | **Spring** | **Fall** | **Spring** | **Fall** | **Spring** |
| Food Knowledge | 3.89 | 4.20 | 3.97 | 3.97 | 3.86 | 3.76 | 3.93 | 3.67 |
| Food Behavior† | **3.27\*** | **3.70\*** | **4.09\*** | **3.12\*** | 3.30 | 3.44 | 3.03 | 3.59 |
| Food Confidence | 3.20 | 3.22 | 3.11 | 3.18 | 3.28 | 3.39 | 3.35 | 3.36 |
| Physical Activity Knowledge | 1.93 | 1.85 | 1.83 | 1.78 | 1.96 | 1.97 | 2.09 | 2.19 |
| Physical Activity Behavior | 1.21 | 1.24 | 1.21 | 1.20 | 1.26 | 1.21 | 1.21 | 1.32 |
| Physical Activity Confidence | **4.60\*** | **4.95\*** | 4.69 | 4.82 | 5.03 | 5.13 | 4.88 | 4.93 |

† indicates significant (p < 0.05) differences among groups in the Fall; ‡ indicates significant (p < 0.05) differences among groups in the Spring; \* indicates significant (p < 0.05) differences from Fall to Spring within each group.

### **BMI Results**

BMI data were collected for participants in kindergarten through fifth grade. There were 267 students who were assessed in both the fall and the spring. At one site, 11 students were assessed in the early spring and again in late spring. Frequencies and percentages of students in each weight category are presented in Table 4, and mean BMI percentiles are presented in Table 5. The relationships between gender and age with weight categories were assessed using Chi-Square analysis for Fall data. Fall differences among groups in mean BMI percentiles were assessed using t-tests (gender) and ANOVA (age), and differences in mean BMI percentiles from Fall to Spring were assessed via paired t-tests.

In the Fall, almost 38% of students were considered overweight or obese; this percentage declined slightly to 35% in the Spring (Table 4). A much larger percentage of males than females were classified as obese during both time points. Age and weight category were not related via Chi-Square analysis (data not shown).

Of the small group (n = 11) whose BMI was measured at the beginning and end of Spring, 27% were classified as overweight or obese at both time points. Mean BMI percentile was 70.0 ± 21.9 at the first time point and 64.0 ± 26.8 at the second time point. No significant differences were detected via paired t-test (p = 0.1669).

Table 4. Frequency (Percent) of Participants in Each Weight Category, by Gender.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Under and Normal Weight  ( < 85th percentile) | Overweight  (85th to < 95th percentile) | Obese  (≥95th percentile) |
| Fall | 166 (62.2) | 49 (18.4) | 52 (19.5) |
| Spring | 174 (65.2) | 51 (19.1) | 42 (15.7) |
| Gender† |  |  |  |
| Males |  |  |  |
| Fall | 75 (55.9) | 20 (14.9) | 39 (29.1) |
| Spring | 79 (58.9) | 27 (20.2) | 28 (20.9) |
| Females |  |  |  |
| Fall | 91 (68.4) | 29 (21.8) | 13 (9.8) |
| Spring | 95 (71.5) | 24 (18.1) | 14 (10.5) |

† indicates significant (p < 0.05) gender differences via Chi-Square analysis in the Fall and Spring.

While weight category was associated with gender via Chi-Square analysis, there was not a significant gender difference in mean BMI percentile at the beginning of the study period (t-test, p = 0.3156), nor was there a difference by age (ANOVA, p = 0.7200). There was not a significant change in mean BMI percentile from Fall to Spring when the students were assessed as a single group (paired t-test, p = 0.0514; Table 8). However, mean BMI percentile decreased among some individual groups, namely males and 8-year-olds (Table 5). Additionally, mean BMI percentile decreased at 3 of the 18 program sites, though number and age of participants ranged across the sites (data not shown).

Table 5. Mean BMI Percentile (± SD) by Gender and Age.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Fall | Spring | P-value (α = 0.05) |
| Total | 67.3 ± 28.7 | 65.3 ± 28.8 | 0.0514 |
| Gender |  |  |  |
| Males† | 69.1 ± 30.4 | 65.7 ± 31.0 | **0.0225** |
| Females | 65.5 ± 26.9 | 64.9 ± 26.6 | 0.6737 |
| Age (in the Fall) |  |  |  |
| ≤ 7 years | 69.1 ± 27.4 | 70.2 ± 25.1 | 0.4670 |
| 8 years† | 66.4 ± 28.8 | 60.2 ± 30.1 | **0.0023** |
| 9 years | 67.6 ± 30.0 | 63.6 ± 31.9 | 0.0550 |
| ≥ 10 years | 63.4 ± 30.7 | 61.1 ± 31.1 | 0.4860 |

† indicates significant (p < 0.05) differences from Fall to Spring via paired t-test.

## **Summary**

There were some improvements in nutrition and physical activity knowledge, behavior, and confidence, as well as BMI, among students participating in the CATCH Kids Club After-school programs. More children were engaging in at least 7 of 9 healthy nutrition behaviors by the end of the program. Food behaviors were modified by race/ethnicity, though changes were not consistent by specific behavior, meaning the specific behaviors that changed were different according to the group assessed. While most food behavior changes were in the positive direction, the significant changes that occurred among Blacks were primarily negative. In general, food knowledge did not change by racial/ethnic group, with the exception of slight declines among Black students in two items. Similarly, few changes were evident in food confidence.

Students in general and White students in particular engaged in less screen time by the end of the program. However, physical activity participation did not change for any group. Few changes were evident in terms of physical activity knowledge and confidence, though overall confidence appeared to improve for students, and specifically for White students.

There were improvements in mean BMI percentile among males and students who were aged 8 years at the first time point. However, we cannot determine the extent to which the program affected BMI changes or if the changes were a result of the participants’ growth during the year. Since BMI data were not matched with the surveys, we cannot evaluate possible behavior changes that may have coincided with BMI differences.

Limitations with the survey data exist. Because the data are not matched, we cannot talk about changes specific to individuals. Participants present in the Fall may have been different than those present in the Spring. Thus, we cannot say if improvements in survey results were related to the program or to the different backgrounds of the students. However, the CATCH Kids Club curriculum is an evidence-based program that has been proven effective in this population in other studies.2 Other concerns pertaining to the BMI data include not having collected the same demographic data with BMI as was done with the survey, and not using the same age range as was used for the survey.

## **Future Directions**

In year 5, we are introducing a pilot project in a select number of CATCH after-school sites to investigate the efficacy of policy changes. The policies include implementing standards such that programs increase the amount of fruit and vegetables served as snacks, serving water as the primary drink, and increasing time spent engaging in age-specific physical activity.

In year 6, we will continue the policy project. In addition, changes to the nutrition education have been made, thus necessitating changes to the food portion of the survey. To improve analysis, we intend to match surveys from Fall to Spring and to match surveys with BMI data.

References:

1. Han. J.L. & McGaugh, M.J. (June 9, 2012). *Oklahoma CATCH Kids Club: 2010 Analysis.* Retrieved from <http://www.ok.gov/health/documents/2010-2011.docx>
2. University of Texas School of Public Health (June 4, 2012). *CATCH Kids Club*. Retrieved from <https://sph.uth.edu/catch/KidsClub.htm>