# Analysis of Nutrition Outcomes for Aim 2

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## 1 Cereal before baby food

To test for a book group effect on whether mothers introduced cereal before other baby foods (cerfirst: Evidence that M gave cereal B4 babyfood?), we used a chi-square test of independence. Counts of this outcome by book group are given in Table 1, along with the chi-square test statistic and $p$-value. There was no evidence of an association between book group and cerfirst. It is important to note that, of the 168 subjects with post-wave one interviews, more than 44% had missing values for this variable.

Table 1:

| | N | No Book | Non-Educational Book | Educational Book | Test Statistic |
|---|---|---|---|---|---|
| | | $N = 59$ | $N = 56$ | $N = 53$ | |
| Evidence that M gave cereal B4 babyfood? | 93 | | | | $\chi^2_2 = 2.93,\ P = 0.231$ |
| 0 No | | 9% ( 3) | 11% ( 4) | 24% ( 6) | |
| 1 Yes | | 91% (30) | 89% (31) | 76% (19) | |

$N$ is the number of non–missing values.
Numbers after percents are frequencies.
Test used:
Pearson test

## 2 Percent correct nutrition behaviors

Table 2 gives the raw means of the nutrition summary score (awinpc: Nutrition Behaviors Score) by group and by wave.

We fitted the full model for the nutrition summary outcome, including an interaction term between study group and infant age, but we found no evidence to suggest that this interaction term was significantly nonzero at the $\alpha = 0.05$ level ($p = 0.444$). As per the analysis plan, we re-fitted the model without this interaction term. The parameter estimates and standard errors from the reduced model are given in Table 3. There was no evidence of any book group effect on the nutrition summary score.

Table 2: Nutrition Behaviors Score, Raw Group Means by Treatment Group and by Wave

| **Wave** | **No Book** | | | **Non-Educational Book** | | | **Educational Book** | | | **Total** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | N | Mean | SD | N | Mean | SD | N | Mean | SD | N | Mean | SD |
| 2 | 54 | 96.8 | 3.6 | 50 | 96.1 | 4.2 | 47 | 96.1 | 4.5 | 151 | 96.4 | 4.1 |
| 5 | 51 | 89.5 | 8.2 | 46 | 88.7 | 9.1 | 46 | 89.2 | 8.9 | 143 | 89.1 | 8.7 |
| 6 | 55 | 89.9 | 7.4 | 50 | 88.2 | 8.9 | 47 | 90.2 | 6.6 | 152 | 89.4 | 7.7 |
| 7 | 54 | 89.1 | 8.0 | 47 | 90.0 | 7.8 | 44 | 91.1 | 8.0 | 145 | 90.0 | 7.9 |
| Total | 214 | 91.3 | 7.7 | 193 | 90.8 | 8.3 | 184 | 91.7 | 7.6 | 591 | 91.3 | 7.8 |

Table 3: Parameter estimates for linear mixed model (Model One), Nutrition Behaviors Score

| | Estimate | Std Error | LL | UL | $p$-value | Interpretation |
|---|---|---|---|---|---|---|
| Intercept | 89.97 | 1.05 | 87.92 | 92.02 | <0.001 | Average taught score for No Book Group at reference levels |
| Non-Educational Book | 0.09 | 0.72 | −1.32 | 1.51 | 0.897 | Average change for Non-Educational Book versus No Book |
| Educational Book | 0.53 | 0.74 | −0.91 | 1.97 | 0.475 | Average change for Educational Book versus No Book |
| Infant Age | −0.35 | 0.04 | −0.43 | −0.26 | <0.001 | Average change per 1 month increase in baby age |
| Perc. Correct Baseline | 0.02 | 0.03 | −0.05 | 0.08 | 0.615 | Average change per unit increase in baseline knowledge |
| Wonderlic | 0.12 | 0.05 | 0.02 | 0.22 | 0.019 | Average change per unit increase in Wonderlic score |
| Maternal Age (linear) | −0.17 | 0.12 | −0.40 | 0.06 | 0.148 | Linear effect of mother's Age |
| Maternal Age (quadratic) | 0.02 | 0.01 | 0.00 | 0.05 | 0.034 | Quadratic effect of mother's age |
| Education (Completed HS) | 1.02 | 0.86 | −0.66 | 2.70 | 0.237 | Average change for High School Completion versus No High School |
| Education (Some College) | 1.01 | 0.91 | −0.76 | 2.78 | 0.267 | Average change for Some College versus No High School |
| Education (College Degree) | 2.14 | 1.30 | −0.41 | 4.69 | 0.103 | Average change for College Degree compared to No High School |
| Race (white) | 0.58 | 0.75 | −0.89 | 2.04 | 0.444 | Average change for Non-Hispanic Whites versus Other |
| Public Assistance | −0.08 | 0.31 | −0.70 | 0.53 | 0.789 | Average change for each additional public assistance program |
| Marital Status (married) | 0.25 | 0.85 | −1.41 | 1.91 | 0.768 | Average change for Married/Living as Married versus Other |

Table 4: Overall P-values, Nutrition Behaviors Score Model One

| | DF | F statistic | p value |
|---|---|---|---|
| Book Group | 2 | 0.3 | 0.744 |
| Infant Age | 1 | 68.4 | <0.001 |
| Perc. Correct Baseline | 1 | 0.3 | 0.615 |
| Wonderlic | 1 | 5.6 | 0.019 |
| Maternal Age | 2 | 2.3 | 0.103 |
| Education | 3 | 0.9 | 0.425 |
| Race | 1 | 0.6 | 0.444 |
| Public Assistance | 1 | 0.1 | 0.789 |
| Marital Status | 1 | 0.1 | 0.768 |

Table 5: Nutrition Behaviors Score (Model One) Model-based group means and 95% confidence intervals at reference levels of factor variables and average values of linear covariates

| | Estimate | Lower | Upper |
|---|---|---|---|
| No Book Group | 90.0 | 87.9 | 92.0 |
| Non-Educational Book Group | 90.1 | 88.1 | 92.0 |
| Educational Book Group | 90.5 | 88.4 | 92.6 |

Table 6: Model-Based Pairwise Differences in Nutrition Behaviors Score

| Comparison | Effect Estimate | Lower | Upper | $p$-value | Standardized Effect Size |
|---|---|---|---|---|---|
| Educational Book - No Book | 0.5 | −0.9 | 2.0 | 0.475 | 0.08 |
| Educational Book - Non-Educational Book | 0.4 | −1.0 | 1.9 | 0.548 | 0.06 |
| Non-Educational Book - No Book | 0.1 | −1.3 | 1.5 | 0.897 | 0.01 |
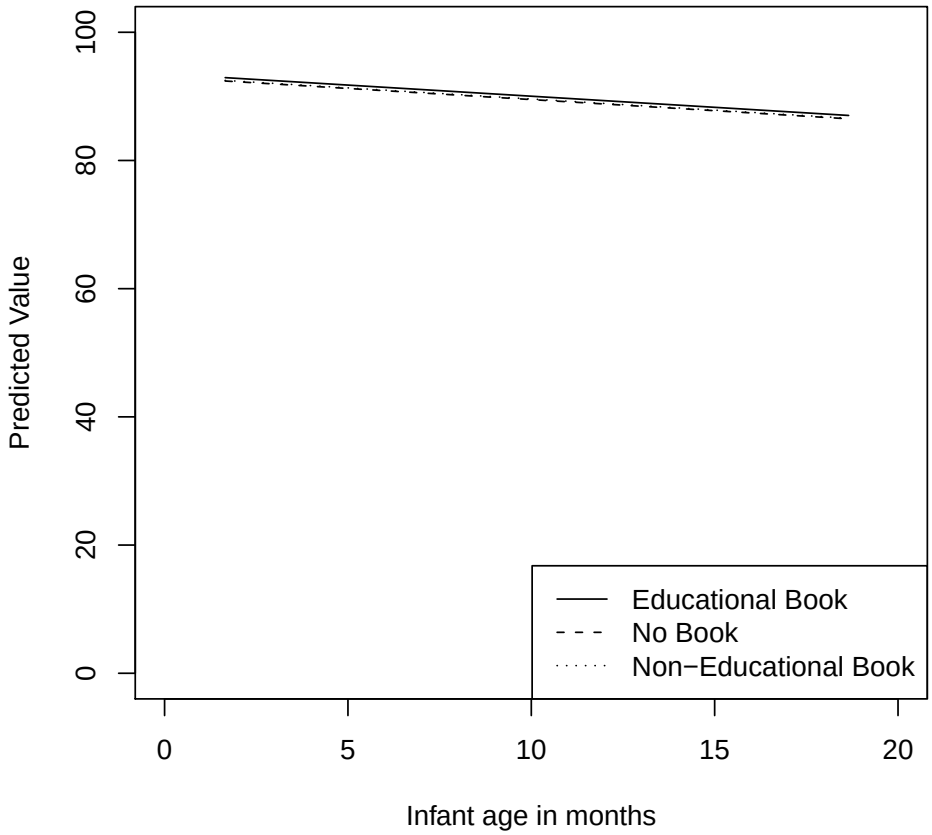
Figure 1: Estimated means of Nutrition Summary Score, by infant age