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Relationship of Family Nutrition and Physical Activity (FNPA) Screening Scores and BMIz in Rural Children

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Sustained childhood obesity prevalence has signified a need to assess modifiable contributors to adverse weight outcomes. The Family Nutrition and Physical Activity (FNPA) screening tool is an established method to assess obesogenic home environments and behaviors. **PURPOSE:** To examine the relationships between the Family Nutrition and Physical Activity (FNPA) screening tool and changes in BMIz and BMIz extended. **METHODS:** Data were extracted from Geisinger's electronic health record database for this retrospective study. Children were included if they were between 2-11 years and completed two FNPA's during well-child visits in successive years from 2013-2021. Data collected in each completed FNPA included sex, age, race/ethnicity, FNPA score, and BMI (including BMI%, BMIz, and BMIz extended). Multiple linear regression adjusting for baseline FNPA, age, and sex was used to determine if change in FNPA score was correlated with change in BMI (utilizing BMIz and BMIz extended).

RESULTS: The 11,913 children (52% male; 48% female), had a mean age of 5 ± 2.4 years, and were 83% non-Hispanic White, 9% Hispanic, 6% non-Hispanic Black, and 2% other race/ethnicity. BMI percentile at the baseline FNPA was 3% <5th percentile, 67% in the 5-85th percentile, 16% in the 85-95th percentile, and 15% >95th percentile. No significant relationships were observed between FNPA and BMIz or BMIz extended for children whose baseline BMI percentile was <85. However, for children with a baseline BMI percentile ≥ 85 , a significant relationship was observed between FNPA score and BMIz (1 point increase with FNPA was associated with 0.0059 decrease in BMIz, $p=0.0004$) and BMIz extended (1 point increase with FNPA was associated with a 0.0048 decrease in BMIz extended, $p=0.0029$). **CONCLUSION:** Among a large rural pediatric population with longitudinal data, increased FNPA scores exhibit a significant inverse association with decreases in BMIz and BMIz extended when baseline BMI is $\geq 85^{\text{th}}$ percentile. These findings suggest utility for FNPA in secondary prevention.