P43 (continued)

($X^2(2, n = 116) = 6.66, P = .036$). Single-parent households more often allowed children to use the following during meals: electronic devices ($X^2(3, n = 117) = 9.63, P = .022$), toys ($X^2(3, n = 117) = 8.44, P = .038$), or books ($X^2(3, n = 117) = 10.22, P = .017$).

Conclusions and Implications: Most study participants reported some healthful mealtime behaviors (i.e. eating dinner together and at a table). However, these benefits may be attenuated by other behaviors, such as use of technology at mealtimes. The impact of technology on social interactions between family members during meals requires further exploration.

Funding: NIFA.

P44 Feasibility of a Family Meal Intervention to Address Nutritional Wellbeing, Emotional Wellbeing and Food Insecurity of Families with Adolescents

Jennifer Utter, PhD, MPH, RD, j.utter@auckland.ac.nz, University of Auckland, Private Bag 92019, Auckland 01071, New Zealand; Stephen Cribb, BHumServ, Counties Manukau District Health Board; Simon Denny, PhD, MPH, FRACP, University of Auckland; Bridget Farrant, FRACP

Background (Background, Rationale, Prior Research, and/or Theory): Observational research suggests that family meals have significant benefits for children. However, interventions to successfully increase family meals are difficult to implement.

Objectives: To assess the feasibility of a family meal intervention to address nutrition, emotional wellbeing, and food insecurity among families with adolescents.

Study Design, Setting, Participants, Intervention: Nine adolescents and a parent/caregiver were recruited from an outpatient youth health clinic. Families were provided with meal plans, recipes and ingredients to prepare five family dinners weekly, for four weeks. Participants completed baseline and follow-up surveys and open-ended interviews.

Outcome Measures and Analysis: Frequency of family meals, adolescent cooking, vegetable consumption, parent and adolescent mental health, and household food insecurity. Interview data were analyzed to add context to findings.

Results: Mean age of participating adolescents was 15 years and five were female. Participating adolescents were ethnically diverse and economically disadvantaged. Families reported the intervention was acceptable: frequency of family meals increased by 2 meals per week and adolescents reported more frequent cooking (0.9 times per week at baseline, 4.5 at follow-up). Among parent/caregivers and adolescents, 4 of 9 reported increases to vegetable consumption and most reported improvements to mental wellbeing. Specifically, eight parent/caregivers reported reductions in depression, anxiety and stress and seven adolescents reported improvements to wellbeing. Participants commented on better family communication and fewer arguments during the intervention. Household food

insecurity reduced during the intervention (means 8.2 and 0.2 at baseline and follow-up, respectively). As one parent noted, "our budget is quite tight... and having the meals was good because you knew you were getting a lot more vitamins and vegetables."

Conclusions and Implications: Providing families with meal plans, recipes and ingredients is an acceptable way to improve family meals. Future research and interventions may consider the family meal as a way to engage with families on wider issues, including wellbeing and food insecurity.

Funding: Maurice and Phyllis Paykel Trust.

P45 Friends' Eating Behaviors are Associated with Emerging Adults' Eating Behaviors Over Time and Differs by Friend Type

Meg Bruening, PhD, MPH, RD, meg.bruening@asu.edu, Arizona State University, 550 N 5th Street, Phoenix, AZ 85004; Irene van Woerden, MS

Background (Background, Rationale, Prior Research, and/or Theory): Friends' eating behaviors are associated with healthy and unhealthy adolescent eating behaviors. Most studies that have examined these relationships are cross-sectional, and no studies have examined these relationships among college populations when there are significant, concurrent changes in social networks and eating behaviors. Research is needed on how different types of friends/peers may impact eating behaviors.

Objective: To examine and differentiate the impact of friend/peer type on college students' eating behaviors overtime.

Study Design, Setting, Participants, Intervention: Web-based longitudinal surveys were administered four times (August, November, January, April) during 2015–2016 among diverse college students ($n = 358$; 68% female; 47% non-white) participating in the SPARC study at an urban university.

Outcome Measures and Analysis: Students' and students' friends and peers in residence halls eating behaviors (evening meal, fast food, restaurant, dining hall, home cooking, fruit and vegetable, and added sugar intake) were measured with validated tools including the Dietary Screening Questionnaire. Friends/peers were measured via friend nomination surveys [best friend ($n = 329$), friend group ($n = 349$)] and residence life data [residence hall floor ($n = 336$), and residence hall ($n = 358$)]. Structural equation models (SEM) were used to assess the association between students' eating behaviors, and friends'/peers' eating behaviors, after accounting for prior eating behaviors. SEM paths were constrained equal due to lack of variability over time.

Results: Students' evening meal and dining hall consumption was associated with their best friend, friend group, residence hall floor, and residence hall, evening meal and dining hall consumption ($P < .05$). Students' home cooked meals and fast food consumption was associated with best friends, friend groups, and residence hall floors home

Continued on page S29

P45 (continued)

cooked meals and fast food consumption ($P < .05$). Student's restaurant meal consumption was associated with friend group's and residence hall floor's restaurant meal consumption ($P < .05$). Student's fruit and vegetable intake was only associated with residence hall floors ($P < .01$). Added sugar was not associated with any of the friendship types.

Conclusions and Implications: Eating behaviors are influenced at different levels of friendship, with behaviors suggesting normative patterns.

Funding: NIH.

P46 Nutritional Status, Diet Diversity, Meal Frequency, and Taboos: Cross-Sectional Assessment of Pregnant Adolescents in Malawi

Christine Walters, MS, BS, LD, RDN, christine.n.walters@gmail.com, Oklahoma State University, 301 Human Sciences, Stillwater, OK 74074; Pilirani Bendulo, Child Legacy International; Barbara J. Stoecker, PhD, RD, Oklahoma State University

Background (Background, Rationale, Prior Research, and/or Theory): High rates of adolescent pregnancy in Malawi compromise the health of mothers. Research focusing on the nutritional status of pregnant adolescents in Malawi is minimal.

Objective: The objective was to assess dietary diversity, food taboos, meal frequency, and nutritional status of pregnant adolescents in rural Malawi.

Study Design, Setting, Participants, Intervention: The study included 62 pregnant adolescents between 15–19 years old and occurred near Msundwe, Malawi. Data collection included the use of a pre-tested questionnaire, standardized 24-hour dietary diversity survey and measurements of mid-upper arm circumference (MUAC), height, and hemoglobin.

Outcome Measures and Analysis: For descriptive data, percentages of the sample or mean (SD) were calculated using the statistical software SAS, V. 9.4. Plausible explanatory variables predicting hemoglobin were tested using multivariate linear regression.

Results: The occurrence of anemia was high (66%), low MUAC (≤ 25 cm) occurred in 31%, and 21% had low height (≤ 150 cm.) Less than half (48%) received advice about nutrition during pregnancy and only 8% received advice about infant nutrition. Only 37% consumed iron supplements. Those receiving nutrition advice were more likely to take an iron supplement [OR = 4.19 (1.82–9.68), $P = .0008$] compared to those who did not. All attended at least one antenatal visit. As the number of antenatal visits increased, participants were more likely to take an iron supplement [OR = 11.88 (3.40–41.49) $P = .001$]. The majority (69%) did not meet the minimum dietary diversity (≥ 5 of 10 food groups). Less than half (39%) ate meat, poultry, or fish, only 7% ate eggs, and none consumed dairy. Eating meat, poultry, or fish or dark green leafy vegetables predicted a 1.31 g/dL ($P = .0306$) or 1.08 g/dL ($P = .0331$) increase in hemoglobin levels, respectively

($R^2 = 0.15$). Food restrictions were common (35%). Most (74%) were not meeting the recommended meal frequency during pregnancy (three meals and at least one snack/day.) Mangoes were the most commonly eaten snack.

Conclusions and Implications: Improving nutrition education is essential to promote healthy nutrition for pregnant adolescents in Malawi. Education for Malawian adolescents should focus on dietary diversity, consumption of iron-rich foods, meal frequency and healthy snacking.

Funding: Wes and Lou Watkins, Don and Cathey Humphreys, Kevin Talley.

P47 Parent Perspectives on the Interference of Organized Youth Activities with Family Meals

Nicole Larson, PhD, MPH, RDN, larsonn@umn.edu, University of Minnesota, School of Public Health, 1300 S 2nd Street, Suite 300, Minneapolis, MN 55454; Jayne Fulkerson, PhD, University of Minnesota, School of Nursing; Jerica Berge, PhD, MPH, LMFT, CLFE, University of Minnesota, Department of Family Medicine and Community Health; Marla Eisenberg, MPH, ScD, University of Minnesota, Department of Pediatrics; Dianne Neumark-Sztainer, PhD, MPH, RD, University of Minnesota, School of Public Health

Background (Background, Rationale, Prior Research, and/or Theory): Research has related frequent family meals to several indicators of better child and parent health, but involvement in youth activities may be a common barrier to eating together.

Objective: This study examines the extent to which parents perceive child participation in organized activities (e.g. sports) to interfere with family meals and how this perception is related to aspects of household food and activity environments.

Study Design, Setting, Participants, Intervention: Attitudes and behaviors of parents ($n = 573$, 67% female, mean age = 31 years) were assessed along with household characteristics in 2015–2016 as part of the fourth wave of the Project EAT study. The analytic sample included respondents who reported living with one or more child (2+ years) for the majority of the past year; the median age of the oldest child was 6 years.

Outcome Measures and Analysis: Parents reported separately on the extent (not at all, slightly, somewhat, or a lot) that their children's participation in youth sports and other organized activities (e.g. scouts) interferes with having family meals. Additionally, parents reported on family functioning, family meal frequency, meal attitudes, restaurant food purchasing, and time spent supporting children's physical activity. Models included a dichotomous indicator of the perception that either form of activity interfered somewhat or a lot with having family meals.

Results: Approximately two-thirds of parents ($n = 389$) reported their child(ren) were involved in an organized activity. Among the subgroup reporting involvement, the

Continued on page S30