

not well known. Hands-on tasks, collaboration, and cooking may help. Using validated PERMA measures, The Nourished Minds Project promotes well-being in underserved U.S. youth (grades 3–8) through nutrition and culinary education. **METHODS/STUDY POPULATION:** The study integrates an adapted PERMA Profiler into Common Threads' classes to assess well-being in underserved children. The 49-item tool was reduced to 16-items, ensuring consistency (Cronbach alpha ≥ 0.7) and a 3rd-4th grade reading level. Participants from SNAP-eligible communities will be recruited from partner schools in nine U.S. cities. The intervention group will complete surveys before, during, and after the 10-week program, while a control group will take surveys without participating. Data will be collected via paper and digital formats, analyzed in R using paired t-tests or Wilcoxon tests. The study will assess PERMA constructs and conduct subgroup analyses, with observational data monitoring fidelity and engagement. **RESULTS/ANTICIPATED RESULTS:** It is expected that integrating the adapted PERMA measure, alongside an updated PERMA-related cooking curriculum, within these programs will significantly enhance youth well-being across all five constructs. The adapted measure is anticipated to demonstrate validity in capturing meaningful changes in the psychological and emotional states of participating youth, with projected improvements in self-reported well-being across these areas over the course of the intervention as well post-intervention. **DISCUSSION/SIGNIFICANCE OF IMPACT:** The adaptation of the PERMA Profiler for youth will serve as a vital tool to measure well-being in underserved communities. By linking culinary education to psychological flourishing, the Nourished Minds project can help inform future interventions aimed at enhancing youth well-being.

273

Investigating disparities in mobility and physical health across the Rural South to inspire change

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OBJECTIVES/GOALS: This study aims to address mobility disability in the rural South by collecting advanced clinical measures in underserved communities, uncovering relationships between socioeconomic status, mobility, and physical health, providing data to aid clinicians in diagnosis and treatment, and improving healthcare delivery in disadvantaged areas. **METHODS/STUDY POPULATION:** We will recruit 50 participants aged 65+ years from a diverse range of areas in the rural South. Data collection will occur at community health fairs, employing a community-centered approach. Assessments include mobility measures using portable inertial sensors, physical health assessments: body composition (TANITA BC-568), muscle size analysis (ultrasound), central and peripheral blood pressure. Demographic information: We will analyze relationships between ADI, mobility, and physical health measures. This approach allows for comprehensive health evaluation in participants' own communities, facilitating trust building and immediate dissemination of health information. The study design enables investigation of socioeconomic impacts on health and mobility in this underserved population. **RESULTS/ANTICIPATED RESULTS:** Preliminary data from our ongoing community health fairs ($n = 172$) show promising feasibility for data collection in rural settings. Importantly, initial analyses reveal a significant correlation between higher area deprivation index (ADI) scores and reduced

mobility performance, supporting our hypothesis that socioeconomic factors influence physical function. We anticipate further findings, including more detailed relationships between ADI and specific mobility parameters (e.g., gait speed and balance), associations between ADI and poorer physical health measures (e.g., increased arterial stiffness and decreased muscle mass), and interrelationships between mobility impairments and cardiovascular health markers. **DISCUSSION/SIGNIFICANCE OF IMPACT:** Building vital relationships with rural communities while uncovering critical links between mobility and physical health. By bridging urban science and rural needs, we are addressing health disparities and informing targeted healthcare strategies. Our findings will improve clinical decision-making and healthcare delivery in underserved areas.

274

Improving early life pediatric surgical care: Designing and implementing a multi-methods assessment of disparities and opportunities for intervention in pediatric inguinal hernia repair (PIHR)

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OBJECTIVES/GOALS: Pediatric inguinal hernia (PIH) is a common diagnosis managed by pediatric surgeons. Patients typically present in the outpatient setting for evaluation. However, a subset present emergently with hernia incarceration, which has a higher risks. Our research aims to identify and address disparities in access to care of PIHR. **METHODS/STUDY POPULATION:** This study has a sequential multi-methods approach. First, we will perform a retrospective cohort study of pediatric patients (ages 0–18) who have undergone PIHR at St Louis Children's Hospital (SLCH) over the past 5 years ($n = 3,421$). We will assess the impact of demographic and system-based factors on patient outcomes. Second, we will conduct interviews with caregivers of patients who have undergone PIHR. Qualitative interviews will be coded to prospectively identify themes in barriers and facilitators to accessing care, understanding of disease, and effectiveness of risk factor education by the pediatric care team. Finally, we will analyze the readability index (RI) of patient provided materials to assess the impact of health literacy on access to care and PIHR outcomes. **RESULTS/ANTICIPATED RESULTS:** We hypothesize that demographic factors and socioeconomic status (SES) impact outcomes in PIHR. We anticipate higher rates of incarceration and emergent presentation of children from low SES and racial/ethnic racial minorities in our dataset, with longer time from initial presentation to definitive repair. Moreover, we anticipate identifying significant barriers to accessing care for non-white patients and patients with low SES, with gaps in understanding about the risk factors, presentation, and management of PIH. Finally, we hypothesize that the RI of our patient provided materials do not match community literacy rates, and there will be opportunities to implement new patient provided materials to improve parental education and communication in the perinatal space. **DISCUSSION/SIGNIFICANCE OF IMPACT:** More than 600 patients undergo PIHR annually at a large tertiary care pediatric hospital, with those who are born premature being at higher risk. Using a mixed-methods approach, we aim to implement targeted interventions to facilitate access to care and improve patient outcomes in PIHR.