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Translational Research – Interventions for Promoting Health in Children

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Interventions for promoting the health of children and adolescents provide strategies for advancing the care of children. The scope of pediatric nursing practice is broad and includes health promotion and disease prevention and management, as well as providing care for children and adolescents with acute and chronic conditions across a variety of healthcare settings and home. It is important to note that translation of nursing research into evidence-based practice improves health outcomes for children and their families (Hockenberry and Wilson, 2015; Melynk and Fineout-Overholt, 2014; Polit and Beck, 2017). Innovative intervention strategies designed to improve the quality of care are tested through research to improve the health of children, adolescents, and their families (Christian, 2013, 2015, 2016, 2018). Ultimately, these innovative intervention strategies provide new ways to improve health outcomes for children, while advancing the quality of pediatric nursing practice.

In this issue of the *Journal of Pediatric Nursing*, 15 articles present research and quality improvement projects focused on health promotion and disease prevention and management in children and adolescents. The articles in this issue provide innovative intervention strategies that examine a wide range of issues, including: (a) the prevalence of community-level adverse childhood experiences (ACEs) and emotional regulation in children and adolescents; (b) the relationship between dietary intake among Head Start preschooler-caregiver dyads; (c) obesity prevention behaviors with respect to cardiovascular risk factors among Asian Indian adolescent girls living in the U.S.; (d) severe obesity as a risk factor for severe influenza complications in children and adolescents and the need for targeted influenza vaccination; (e) the relationship between pain sensitivity, central sensitization, and functional disability in adolescents with joint hypermobility and chronic pain; (f) maturity in adolescents with Type 1 Diabetes Mellitus (T1DM) with respect to transition to independent self-management; (g) perspectives of stakeholders about possible barriers and facilitators to human papillomavirus (HPV) vaccination in children; (h) the development and usability of a technology recording mobile application for pediatric blood and marrow transplant (PBMT) patients to monitor health status and enhance symptom management; (i) perceptions of pregnant and postpartum Mexican-American adolescents and mental health literacy with respect to perinatal depression; (j) parent and nurse satisfaction with the use of Pacidose® oral medication delivery to infants and toddlers in the pediatric emergency department; (k) school-based, asthma educational

and self-management program implemented by nursing students in an elementary school setting to improve daily asthma symptom management; (l) evidence-based practice Teach-Back brief educational intervention program to improve knowledge of health literacy and patient education; (m) quality improvement project to standardize tracheostomy care, caregiver education, and the discharge process; (n) determine predictors of social relationships among Children with Special Health Care Needs (CSHCN); and (o) perceptions of East African immigrant community members living in the U.S. about barriers and facilitators to participation in pediatric clinical research.

The articles in this issue of the *Journal of Pediatric Nursing* describe innovative intervention strategies for health promotion in children and adolescents based on the outcomes of research and quality improvement projects, as follows:

- A secondary analysis of data from a nationally representative sample of U.S. children ($N = 65,680$; ages 6 to 17 years; 51.2% male) from the National Survey of Children's Health (2011–2012) conducted by the Maternal and Child Health Bureau/Health Resources and Services Administration (MCHB/HRSA) was used to explore the prevalence of community-level adverse childhood experiences (ACEs) and emotional regulation in children and adolescents (Thurston, Bell, and Induni, 2018). Race/ethnicity of the sample included: 67.4% White non-Hispanic, 9.2% Black non-Hispanic, 12.4% Hispanic, and 10.1% other. Overall prevalence of exposure to community ACEs was 13%. The weighted prevalence of exposure to adverse childhood events was 45% with 22% of the children experiencing two or more adverse events. In the cumulative model, exposure of children to ACEs was significantly related to reduced odds of emotional regulation among children; while having two or more ACEs demonstrated the strongest association. Children exposed to ACEs were five times more likely to have better emotional regulation when strong child/parent relationships existed. In the individual ACEs model, poor emotional regulation for children with adverse event exposure was significantly associated with witnessing violence in the neighborhood, being treated unfairly due to race/ethnicity, household poverty, domestic violence, and household members with substance abuse or mental illness. Thus, results highlight the negative influence of adverse childhood experiences on emotional regulation in children and the need for pediatric healthcare providers to screen for ACEs among children to improve coping ability.
- A cross-sectional, descriptive correlational study was used to examine the relationship between dietary intake among Head Start

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- preschooler-caregiver dyads (Ling, Zahry, Wasilevich, and Robbins, 2018). Caregivers ($N = 70$ preschooler-caregiver dyads) completed an online survey about dietary intake, feeding practices, and psychosocial factors. Characteristics of preschool children included age ranging from 3 to 5 years with mean age 3.9 years ($SD = 0.66$), 62.9% ($n = 3$) female; race/ethnicity 41% Black, 36% White, 23% Mixed/other, and 16% Hispanic; and weight status with 56% ($n = 39$) healthy weight, 1% underweight ($n = 1$), and 43% ($n = 30$) overweight or obese. Caregivers were predominantly female (94%) and single (63%), ranging in age from 21 to 45 years (mean 28.97 years, $SD = 5.58$). Race/ethnicity of caregivers was 47% White ($n = 33$), 39% Black ($n = 27$), 14% Hispanic ($n = 10$), and 14% Mixed/other ($n = 10$). Annual household income was less than \$20,000 for the majority of caregivers ($n = 51$, 73%); 43% ($n = 30$) of caregivers were unemployed or employed part-time ($n = 16$, 23%). The overwhelming majority (81%) of caregivers' weight status was classified as obese or overweight. With respect to preschooler dietary intake, the majority ($n = 49$, 70%) of preschoolers met the USDA daily recommendations for fruit intake, but only a few preschoolers ($n = 7$, 10%) met recommendations for vegetable intake, and none of the children met the recommendations for whole grain intake. Sixty-seven percent ($n = 47$) of caregivers met the daily recommendations for fruit and vegetables dietary intake. Preschoolers' fruit and vegetable dietary intake was not significantly associated with caregivers' fruit and vegetable intake. White preschoolers had greater fruit and vegetable dietary intake compared to Black and other race preschoolers. Although preschoolers' weight status (BMI z-score) was not significantly associated with their daily intake of fruit/fruit juice, vegetables, fiber, and whole grains, lower weight status (BMI z-score) among preschoolers was significantly associated with greater dairy intake. Caregivers' perceptions and concerns about their preschoolers' weight were significantly associated with preschoolers' fruit and fiber intake, as well as greater fruit and vegetable intake. Thus, the findings of this study indicate that preschoolers' dietary intake did not meet USDA daily recommendations for vegetable or whole grain intake and emphasize the importance of caregivers' influence on preschoolers' dietary intake.
- A cross-sectional, descriptive correlational design study was used to evaluate obesity prevention behaviors (e.g., diet, physical activity, sleep duration and quality) with respect to cardiovascular risk factors among Asian Indian adolescent girls living in the U.S. ($N = 20$; 14 to 18 years, mean age 16.25, $SD = 1.23$) (Thomas and Janusek, 2018). The overwhelming majority of adolescent girls ($n = 19$, 95%) were classified as healthy weight with normal BMI and waist circumference < 85th percentile. Adolescent girls participated in a mean of 60 min or more of moderate-to-vigorous physical activity (measured by Actical® accelerometry) for 4.5 days per week, significantly less than the 6-day recommended minimum. More sedentary physical activity was significantly associated with higher systolic blood pressure. Dietary intake measured as average caloric intake per week (via internet-based SuperTracker®) for these adolescent girls was significantly less than the 1700-cal recommended level, with significantly lower levels of average fruit intake, average vegetable intake, and average cholesterol intake per week, but significantly higher levels of saturated fat. The majority of adolescent girls reported good sleep quality ($n = 10$, 50%) or no sleep difficulty ($n = 1$, 5%), with severe sleep difficulty reported by four girls (20%), and moderate sleep difficulty in by five girls (25%). Inadequate sleep was significantly associated with higher diastolic blood pressure and greater BMI. Thus, results of the pilot study suggest poor levels of physical activity, dietary intake, and sleep behaviors among Asian Indian adolescent girls in the U.S.
 - A retrospective chart review was conducted at a large urban children's hospital to determine whether or not severe obesity (BMI ≥ 99 percentile for age and gender) is a risk factor for severe influenza complications (e.g., hospitalization or death) in children and adolescents and the need for targeted influenza vaccination (Neyer, Woo, and Siegel,

2018). A sample of 188 children and adolescents ages 2 to <20 years (56% male; 72% White, 24% African-American, 4% Other) with complete chart data met the inclusion criteria. Of those, 93% ($n = 174$) were hospitalized for known high-risk conditions (e.g., asthma, pneumonia, or 24 to 59 months of age). With respect to obesity, 7.9% of children and adolescents were classified as severely obese (BMI ≥ 99 percentile) and 10.1% as obese (BMI 95th to <99 percentile). The association between severe obesity and known high-risk conditions was not statistically significant. Thus, the findings suggest that severe obesity in children and adolescents is not an independent high-risk condition for influenza complications.

- A cross-sectional, descriptive design study was utilized to explore the association between pain sensitivity, central sensitization, and functional disability in adolescents ($N = 40$) with joint hypermobility being evaluated for chronic pain and autonomic nervous system dysfunction (Bettini, Moore, Wang, Hinds, and Finkel, 2018). The sample was comprised of adolescents (age 12 to 19 years, mean age 15.75, $SD = 2.13$) who were predominantly female (77.5%) with race/ethnicity including 80% Caucasian, 15% Hispanic, and 5% African American. Moderate significant associations were found between joint hypermobility and central sensitization, as well as increased pain sensitivity. Central sensitization scores reflected strong significant associations with level of functional disability and pain. Thus, findings suggest that joint hypermobility in adolescents with chronic pain may be an antecedent to pain hypersensitivity and central sensitization, influencing functional disability.
- A concept analysis of maturity in adolescents with Type I Diabetes Mellitus (T1DM) was conducted to explore the developmental transition to independent self-management using Walker and Avant's approach to concept analysis (Jones and Foli, 2018). Maturity in adolescents with T1DM was describes as a multidimensional state of development that is gradual and dynamic, characterized by impulse control and internal locus of control. Maturity includes physical, cognitive, psychological, and social dimensions, requiring adolescents to be capable of functioning with behavioral, cognitive, and emotional autonomy in self-care activities with respect to independent self-management of T1DM. Thus, for adolescents with T1DM to demonstrate maturity, they must function autonomously in self-management of T1DM on a consistent basis and be capable of seeking guidance.
- A descriptive qualitative study was conducted to explore stakeholders' perspectives of barriers and facilitators to human papillomavirus (HPV) vaccination in central and southern Virginia (Carhart, Schminkey, Mitchell, and Keim-Malpass, 2018). Using a socio-ecological framework, key informant interviews were conducted with stakeholders ($N = 31$) involved in HPV vaccination or cancer prevention, including registered nurses or nurse practitioners ($n = 7$), physicians ($n = 7$), pharmacy or industry ($n = 5$), health department ($n = 5$), community programs ($n = 6$), and health research professors ($n = 4$). Barriers to HPV vaccination were identified at all socio-ecological levels: (a) Parent-child dyad – knowledge gaps and sexuality concerns; (b) Interpersonal level – time constraints and inconsistent recommendations; (c) organizational and community level – lack of leadership and informational support; (d) policy level – ineffective mandate. Identified facilitators by socio-ecological levels included: (a) Parent-child dyad – realistic/receptive attitude; (b) Interpersonal level – providers' strong recommendation and educational support; (c) organizational level – team approach and useful data; (d) community level – educational outreach and community resources; (e) policy level – support from federal and professional organizations. Results of stakeholder analysis provide strategies to guide implementation of a multi-level (HPV) vaccination program in Virginia.
- A multi-phase project was conducted to evaluate the development and usability of a technology recording mobile application prototype for pediatric blood and marrow transplant (PBMT) patients (TRU-PBMT app) to monitor health status and enhance symptom management (Vaughn, 2018). Phase I involved TRU-PBMT app design and

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