



## Research Commentary

## Translational research – Promoting quality of life in children through health screening and improved management of chronic conditions

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Quality of life in children is promoted through health screening and early detection of health problems to prevent the development of chronic conditions. An essential component of quality of life and children's health includes identifying the interrelationships between health screening and the improved management of chronic conditions. Quality of life for children is enhanced through interventions for chronic conditions that have been evaluated and tested through research. Managing the challenges of chronic conditions with effective interventions is essential to improving the quality of life of children with chronic conditions (Christian, 2010, 2016a, 2016b). Evidence generated through research guides the development of best practices. Thus, improvements in pediatric nursing care are based on evidence generated through nursing research leading to better health outcomes for children (Hockenberry, Wilson, & Rodgers, 2019; Melnyk & Fineout-Overholt, 2018; Polit & Beck, 2017). In this way, evidence translated from research leads to improved health and quality of life in children, as well as improved management of chronic conditions.

In this issue of the *Journal of Pediatric Nursing*, 14 articles present research focused on health screening and early detection of health problems in children, as well as management of chronic conditions to improve quality of life, as demonstrated by: (a) an examination of the influence of psychological stress, depressive symptoms, and cortisol on body mass and central adiposity in school-age children; (b) a review of literature to determine the influence of exposure of children to adverse childhood experiences on modifiable cancer risk factors in adulthood; (c) a review of literature to explore factors related to health-related quality of life among survivors of cancer during adolescence; (d) a qualitative study to understand the experiences of adolescent and young adult college students newly diagnosed with Type 1 diabetes mellitus; (e) a chart review to determine health disparities in insulin pump therapy use among children and adolescents with Type 1 diabetes mellitus; (f) a review of literature to examine the effectiveness of nurse-led school- and community-based asthma educational interventions for school-age children and their parents; (g) an evaluation of changes in hope, attitude toward illness, and perceptions of illness-related benefit and burden among children and adolescents with chronic conditions after attending summer camp; (h) a study to determine factors influencing health-related quality of life among Korean

mothers of children with cerebral palsy; (i) a review of literature to identify interventions to improve HPV vaccination rates among adolescents; (j) a review of literature about the resurgence of vaccine-preventable diseases in the U.S.; (k) a review of literature to explore cholesterol screening among youth and the genetic condition of familial hypercholesterolemia to prevent premature cardiovascular disease among family members; (l) a review to evaluate the effectiveness of behavioral and environmental interventions for procedural pain management in preterm infants; (m) a pilot study with pediatric nurse pairs to evaluate interrater reliability of the Braden Q skin risk-assessment scale with children, as compared to the Braden scale; and (n) a review of evidence and best practices for creating a safe sleep environments for infants to prevent Sudden Infant Death Syndrome and Sudden Unexplained Infant Death.

In this issue, the 14 articles in the *Journal of Pediatric Nursing* describe research focused on promoting quality of life in children through health screening to prevent health problems and chronic conditions, as well as to improve management of chronic conditions, as follows:

- A descriptive correlational study was conducted to examine the influence of psychological stress, depressive symptoms, and cortisol on body mass and central adiposity in 10-to-12 year old children (Lynch et al., 2018). A convenience sample ( $N = 147$ ) was comprised of school-age children (ages 10 to 12 years; 84 females, 63 males) recruited from four rural elementary and/or middle schools in the Southeast U.S. The race/ethnicity of the children in the sample included 67.3% Caucasian, 17.7% Hispanic, 11.6% African American, 2% Asian, and 1.4% Multiple Race. Children were screened for pubertal development, growth [e.g., height, weight, body mass index (BMI)], central adiposity (waist circumference), depressive symptoms, and salivary cortisol levels. The majority (57.8%) of children were found to be either obese (40.1%) or overweight (17.7%) with 47.6% prepubescent and 48.3% pubertal. Results indicated a significant moderate positive association between psychological stress and depressive symptoms ( $r = 0.559, p < .001$ ). Depressive symptoms explained 14% of the variance in body mass index and central adiposity, when controlling for sex, race/ethnicity, puberty, and socioeconomic status. Psychological stress accounted for 25% of the explained variance in central adiposity. Although depressive symptoms were significantly associated with body mass index ( $p < .001$ ), psychological stress was not significantly related to BMI. Neither psychological stress nor depressive symptoms were significantly related to cortisol levels.

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Depressive symptoms were reported by school-age children regardless of weight and explained variance in BMI and central adiposity.

- A scoping review was conducted to determine the influence of exposure of children ( $\leq 18$  years of age) to adverse childhood experiences (ACEs) on modifiable cancer risk factors in adulthood (Ports et al., 2019). ACEs included exposure of children to abuse victimization, neglect, and household challenges including parental death/separation/divorce, mental illness, incarceration, domestic violence, and/or family poverty. A search of peer-reviewed literature published in PubMed from 2005 through 2015 yielded 2276 articles with 155 quantitative research articles that met the inclusion criteria examining associations between ACEs and modifiable known cancer risk factors, including alcohol ( $n = 59$ ), chronic inflammation ( $n = 22$ ), infectious agents ( $n = 12$ ), obesity ( $n = 4$ ), tobacco ( $n = 4$ ). It is important to note that no studies were retrieved that focused on ACEs and the association with known modifiable cancer risk factors of environmental carcinogens, sex hormones, immunosuppression, radiation, and ultraviolet radiation. Thus, the results suggest the importance of screening for ACEs to modify risk factors to prevent development of cancer in adulthood.
- An integrative review of the literature was conducted to explore factors related to health-related quality of life among survivors (ages 10 to 19 years) of cancer during adolescence (Shin, Bartlett, & De Gagne, 2019). A search of three electronic databases CINAHL, PsycINFO, and PubMed of the published literature from 1990 through August 2017 yielded 996 articles, resulting in 15 articles that met the inclusion criteria. Results indicated that adolescent survivors of cancer occurring during adolescence demonstrated similar health-related quality of life (HRQOL) scores as compared to healthy controls. Protective factors for adolescent survivors with better quality of life included longer time since diagnosis and survivors ages 18 years and older, feelings of happiness, optimism and positive self-concept, social support, use of active coping strategies, and family functioning. Risk factors for poorer HRQOL included type of cancer and treatment, late effects, and time since diagnosis. Thus, this review of research about health-related quality of life among adolescent survivors of cancer identified the protective factors and risk factors for HRQOL, emphasizing the influence of adolescent development for successful interventions.
- An exploratory qualitative approach was used to understand the experiences of adolescent and young adult college students (ages 18 to 26 years) who were newly diagnosed with Type 1 diabetes mellitus (T1DM) (Saylor, Hanna, & Calamaro, 2019). A focus group was conducted with the college students ( $N = 12$ ; 7 females, 5 males) during a College Diabetes Network retreat to explore the experiences of emerging adults managing T1DM during college. Four themes were identified through thematic analysis of focus group data: (a) diabetes affects all aspects of life and complicates college living; (b) college environment affects diabetes management; (c) diabetes diagnosis facilitates growth and maturity; and (d) strategies used for diabetes management in college. Thus, the challenges of diabetes self-management for newly diagnosed adolescents and young adults combined with integrating chronic illness into college life were highlighted identifying the importance of developmental considerations, as well as the unique nature of college environment.
- A retrospective, descriptive chart review was conducted to determine health disparities in insulin pump therapy use among children and adolescents (ages 6 months to 17 years) with Type 1 diabetes mellitus (T1DM) (O'Connor, Carlin, Coker, Zierler, & Pihoker, 2019). Electronic medical records (EMRs) of children and adolescents with T1DM ( $N = 2131$ ) who had four or more outpatient diabetes visits were reviewed from 2011 to 2016 to identify factors associated with insulin pump therapy. The sample was predominantly male (53.2%), ages 10 to 14 years (41.8%), non-Hispanic White (77.6%), English-speaking (94.8%), with commercial health insurance (70.6%). Significant results of multivariate logistic regression analysis indicated that youth whose primary language is Spanish or non-English language were about half as likely to have insulin pump therapy; non-Hispanic Black and American Indian/Alaska Native youth were less likely to be on an insulin pump therapy when compared to non-Hispanic White youth; youth with government or no insurance were about half as likely to have insulin pump therapy; older patients and males were less likely to be on insulin pump therapy; and youth with poorer glycemic control ( $HbA1c \geq 8.5\%$ ) were less likely to be on insulin pump therapy. Results affirm that health disparities persist for children and adolescents with T1DM and the use of insulin pump therapy despite the known advantages.
- A systematic review of the literature was conducted to examine the effectiveness of nurse-led school- and community-based asthma educational interventions for school-age children (ages 5 to 18 years) and their parents (Isik, Fredland, & Freysteinson, 2019). Four electronic databases ProQuest, Medline (EBSCO), CINAHL, and PubMed were searched for peer-reviewed published literature on nurse-led asthma management intervention programs from 2013 to 2018 yielded 845 articles, resulting in 8 articles ( $n = 5$  Level I,  $n = 3$  Level II studies) that met the inclusion criteria. Results suggest the effectiveness of nurse-led, school-based and community asthma educational interventions demonstrating greater improvements in asthma management knowledge and skills by school-age children and their parents. Additionally, these intervention programs led to reductions in negative asthma outcomes among school-age children, including ER visits, hospitalizations, unscheduled physician visits, missed school days, and missed parental work.
- A pre-test/post-test design was used to evaluate changes in hope, attitude toward illness, and perceptions of illness-related benefit and burden among children and adolescents with chronic conditions ( $N = 62$ ) after attending summer camp for youth with chronic conditions (Faith, Mayes, Pratt, & Carter, 2019). Children and adolescents (mean age 13.45 years,  $SD 2.41$ ) who attended the 5-day summer camp were diagnosed with a variety of chronic conditions, including cancer or brain tumor (34.4%), renal disease (26.2%), sickle cell disease (13.1%), heart disease (6.6%), as well as other chronic conditions (19.7%). The majority of participants were female (51.6%), White (65.2%), Non-Hispanic (80.9%), and had previously attended summer camp (77.9%). Results indicated that attitudes of children and adolescents toward illness significantly decreased after summer camp experience. No significant changes were demonstrated in either hope agency and hope pathways or in the perceptions of illness-related benefit and burden among children and adolescents with chronic conditions who participated in summer camp. The number of camp activities in which youth participated and their pre-camp hope agency predicted increased post-camp hope agency, explaining 7% variance. However, the findings from this study were not consistent with previous research on summer camps for youth with chronic conditions.
- A descriptive, cross-sectional correlational study was conducted to determine factors influencing health-related quality of life (HRQOL) among Korean mothers ( $N = 180$ ) of children (ages 10 months to 12 years; mean age 6.38 years,  $SD 3.19$ ) with cerebral palsy (CP) with the majority diagnosed with first-degree disability (61.1%) (Lee, Matthews, & Park, 2019). A convenience sample of mothers of children with CP was recruited from a university-affiliated hospital ( $n = 53$ ), four pediatric rehabilitation centers ( $n = 88$ ), and two special education schools ( $n = 39$ ) in Korea. The majority of mothers (ages 27 to 56 years, mean age 39.7,  $SD 4.7$ ) were married (94.4%), college graduates (62.2%), with mothers reporting chronic conditions, including back pain (47.2%), migraine headaches (40%), and sleep disorders (26.1%). Regression analysis models were statistically significant for predicting physical HRQOL explaining 37% of the variance, as well as predicting mental HRQOL, explaining 55% of the variance. Mothers with fewer chronic conditions and mothers of children with longer duration of disability demonstrated significantly better physical HRQOL. Higher mental HRQOL for mothers of children with

CP was significantly associated with lower parenting stress, more leisure time, increased engagement in health-promoting behaviors, and greater social support. Moreover, mothers of children with CP who participated in the study demonstrated lower physical and mental HRQOL in comparison to norms for Korean women 30 to 39 years of age. Findings suggest the importance of health promotion interventions for modifiable factors to improve physical and mental HRQOL among Korean mothers of children with CP.

- An integrative review of the literature was conducted to identify the interventions to improve HPV vaccination rates in adolescents (Holloway, 2019). Five electronic databases, including CINAHL, EBSCO, Academic Search Complete, ProQuest, and Medline, were searched for peer-reviewed published literature in the last 10 years yielding 201 articles that met the inclusion criteria resulting in 46 articles for review. Findings identified evidence of specific barriers to HPV vaccination including lack of healthcare provider recommendation and awareness of current guidelines resulting in missed opportunities for HPV vaccination, as well as parental hesitation, refusal, and concerns with respect to cost and misinformation about HPV vaccination. Effective HPV vaccination strategies and completion rates over time included text message reminder systems and parental education about HPV vaccine efficacy. Most effective were interventions that used a combination of strategies including parent education, strong healthcare provider recommendations, reminder systems including text messaging, and standard protocols for HPV vaccination for males and females beginning at ages 11–12 years.
- A review of the current literature reports the resurgence of vaccine-preventable diseases in the U.S. related to vaccine compliance, parent refusal, or under-vaccination, waning immunity, less effective vaccines, and imported cases secondary to global travel (Kubin, 2019). Evidence suggests that healthcare providers are the most important source of vaccination information for parents and that healthcare providers should make strong recommendations for vaccination of children and address parental concerns immediately and directly. Although immunizations are safe and effective in preventing disease in children, healthcare providers must communicate more effectively with parents by establishing trust, using active listening strategies to learn parents' concerns, and providing education about vaccines and the risks of non-immunization to help parents make informed decisions about vaccination for their children.
- A review of the literature published in PubMed from 2000 to 2016 was conducted to explore cholesterol screening among youth and the genetic condition of familial hypercholesterolemia (FH) to prevent the development of premature cardiovascular disease among family members (Vinson, Guerra, Hamilton, & Wilson, 2019). National recommendations include universal cholesterol screening of children (ages 9–11 years) with repeat screening of adolescents (ages 17 to 20 years). Early identification of children with elevated cholesterol, as well as screening for at-risk family members for familial hypercholesterolemia (FH) through reverse cascade screening has the potential to prevent the development of premature cardiovascular disease in the future. Through early cholesterol screening of children and a heart-healthy lifestyle, as well as reverse cascade screening of at-risk family members for FH, pediatric nurses have the opportunity to coordinate lipid clinics and provide patient education for preventing premature cardiovascular disease in children and their family members.
- A systematic review was conducted to evaluate the effectiveness of behavioral and environmental interventions for procedural pain management in preterm infants (Hatfield, Murphy, Karp, & Polomano, 2019). Randomized controlled trials (RCTs) were retrieved through a search of PubMed and Medline of literature published from January 1, 2013 through September 2, 2017, yielding 379 articles with 14 studies that met the inclusion criteria. Results suggest that the use of behavioral and environmental interventions among preterm infants decreases pain responses associated with painful procedures. More specifically, regardless of preterm infant age, facilitated tucking, oral

sucrose, and kangaroo care decreased behavioral and physiologic pain among preterm infants, as well as when used in combination with other behavioral and environmental interventions. Thus, the evidence supports the efficacy of these pain management interventions for preterm infants to decrease biobehavioral pain responses to procedural pain.

- A comparative research pilot study was designed with pediatric nurse pairs evaluating the interrater reliability of the Braden Q skin risk-assessment scale, as compared to the Braden scale for predicting pressure ulcers in children on high-risk units at Texas Children's Hospital in Houston (Riccioni, Berlanga, Hagan, Schier, & Gordon, 2019). Pediatric Skin Champion nurses ( $N = 16$ ; 100% female; 56% staff nurses; 50% BSN, 25% MSN) from high-risk units (PICU, CICU, Progressive Care Unit, Epilepsy Monitoring Unit, and Rehabilitation Unit) were paired and assessed eight patients individually using both the Braden Q skin risk-assessment scale ( $n = 52$ ) and the Braden scale ( $n = 63$ ) ( $N = 115$  complete skin risk assessments). Interrater reliability between pediatric Skin Champion nurses on the Braden scale was higher (ICC 0.894, 95% CI: 0.823–0.938), as compared with the Braden Q scale (ICC 0.726, 95% CI: 0.8585–0.824). For the Braden scale (weighted Kappa for items ranged from 0.415 to 0.921), the highest agreement was for subcategories of mobility and activity, while the lowest level of agreement was found for nutrition and friction shear. In comparison, for the Braden Q scale (weighted Kappa for items ranged from 0.429 to 0.699), the highest agreement was found for mobility and sensory perception, while similar to the Braden scale the lowest level of agreement was for nutrition and friction shear. Thus, the results suggest that to enhance interrater reliability and minimize measurement error, education of nurses about definitions of each subcategory, standardization of scoring criteria and specific location of each data point for comparison may decrease error and improve interrater reliability in skin assessment.
- A review of evidence and best practices for creating safe sleep environments for infants was conducted to determine whether guidelines have been followed by pediatric nurses and parents to reduce risk factors for Sudden Infant Death Syndrome (SIDS) and Sudden Unexplained Infant Death (SUID) (Newberry, 2019). Although American Academy of Pediatrics guidelines for safe sleep environments for infants were published 25 years ago, yet many healthcare professionals do not follow the recommended guidelines for safe infant sleep practices and a knowledge gap continues to prevent implementation in practice. Thus, there is a need for continuing education of healthcare professionals about safe sleep environments for infants and for nurses to model best practices for safe infant sleep recommendations for parents. Additionally, nurses need to provide information to dispel parents' misconceptions and myths about safe infant sleep practices while addressing cultural differences. Thus, pediatric nurses need to employ best practices for safe infant sleep environments by providing education to parents to prevent risk factors for SIDS and SUID.

Importantly, the articles in this issue highlight the essential interrelationships between health screening and early detection of health problems and the management of chronic conditions leading to improved quality of life in children. Reviewing evidence and translating evidence into practice demonstrate the effectiveness of interventions that address the challenging issues associated with chronic conditions in children. To that end, the health and quality of life in children is improved through more effective interventions that have been evaluated and tested through research. In this way, best practices are developed and advances in pediatric nursing care are achieved.

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