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Nursing Research

001–Understanding Stress of Inpatient Nurses Caring for Pediatric Diabetes Patients

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Background: With the opening of an outpatient Pediatric Diabetes Center, patients with diabetes were more often being admitted. In order to focus inpatient nurse education, we wanted to understand their level of comfort with diabetes management.

Aims: This Quality Improvement (QI) project's goal was to understand and reduce the stress levels of inpatient nurses caring for pediatric diabetes patients by assessing stress and providing educational in-services over 12 months.

Methods: The diabetes team provided in-services for pediatric medical (PM) and intensive care unit (PICU) nurses. Pre-education, nurses reported stress related to each diabetes topic using a stress thermometer (stress assessing tool, 0=mild, 10=severe). Education included: pathophysiology, meters, injections, insulin pens, vial/syringe, hyperglycemia, ketones, hypoglycemia, carbohydrate counting, calculating insulin doses, technology, and overall management. Nurses were also administered a stress thermometer post-education.

Results: Aspects of diabetes care most stressful were identified. For PM nurses, average stress scores decreased from pre to post education for the topics that had the highest stress: technology (4.7 vs. 3.9), pathophysiology (4.0 vs. 2.7), and carbohydrate counting (3.9 vs. 3.4). For PICU nurses, average stress scores decreased from pre to post education for: pathophysiology (5.5 vs. 2.7), meters (4.2 vs. 2.2), hyperglycemia (4.0 vs. 2.8), and hypoglycemia (4.0 vs.1.4). However, the average stress score increased for PICU nurses from pre to post education for the topic of carbohydrate counting (4.0 vs. 4.7).

Conclusions: Post-education, nurses' average stress mostly decreased however the most stressful topics differed between PM and PICU nurses. Also, the stress level increased for one of the topics for the PICU nurses. This may indicate many were not aware of the magnitude of knowledge needed or education provided was not suited for them. These findings furthermore suggest it is necessary to develop educational tools targeted to the type of care delivered on the unit.

Clinical Implications: Diabetes management requires in-depth education. The stress thermometer is a useful tool to evaluate nurses' stress levels and understand where to focus education.

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003–Initial Psychometric Evaluation of a Pediatric Diabetic Peripheral Neuropathy Screening Tool

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Background: Diabetic Peripheral Neuropathy (DPN) is the presence of signs and/or symptoms of peripheral nerve dysfunction among people with diabetes after the exclusion of other causes. DPN is well recognized as a major complication of diabetes in adults, but there is considerable uncertainty as to its incidence, prevalence, diagnosis and prognosis among youth. Our team previously applied qualitative methods to develop a content-valid youth-report DPN symptom questionnaire. Our research revealed youth with T1D experience DPN symptoms measurable by self-report.

Aims: To describe the development of a self-report measure of DPN symptoms for youth aged 8-22 years.

Methods: This was a cross-sectional, observational study. Subjects included a total of 203 youth: 151 youth with T1D and 52 with other endocrine diseases. Of the 151 youth with T1D, 5 were recruited from the inpatient unit and 146 from the outpatient clinic. Subjects with other endocrine disorders (n=52) were recruited from the outpatient clinics. Subjects completed the 25-item DPN questionnaire on a single occasion. Data including duration of diabetes/diagnosis, HgbA1c and lab data was abstracted from the medical records.

Results: Qualitative procedures supported the development of a content valid pool of 25 DPN symptoms items. The best-fitting confirmatory factor analytic (CFA) model differentiated items that contributed to 3 internally consistent subscales: pain (5 items, $\alpha = 0.84$); anesthesia (3 items, $\alpha = 0.76$); paresthesia (5 items, $\alpha = 0.83$). IRT (Item response theory) parameters indicated the scales measure a wide range of symptom severity with a high degree of precision: pain ($\theta = 2.73$); anesthesia ($\theta = 4.25$); paresthesia ($\theta = 2.88$). Scale construct validity was supported by evidence that youth withT1D report significantly greater pain ($d = 0.66$), anesthesia ($d = 0.63$), and paresthesia ($d = 0.60$) symptoms than youth with other endocrine conditions.

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