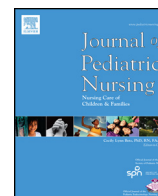




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Assessing the Effect of an Educational Intervention on Nurses' and Patient Care Assistants' Comprehension and Documentation of Functional Ability in Pediatric Patients with Sickle Cell Disease

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ABSTRACT

Purpose: In 2014, the Youth Acute Pain Functional Ability Questionnaire (YAPFAQ) was developed to investigate patient's self-rated functional ability during times of acute pain in the inpatient clinical setting. Although it has great potential, the application of this tool has not been made a standard of care. The purpose of this multiple methods study was to determine if, through an educational intervention, hospital staff could consistently document the YAPFAQ in children with sickle cell disease (SCD) during a vaso-occlusive episode.

Design and Methods: Twenty-two staff members participated in an educational intervention and semi-structured group discussions. Pre/post surveys measured knowledge of the YAPFAQ before and after the intervention. Group discussions were recorded, transcribed verbatim, and analyzed for thematic clusters. Retrospective chart reviews of children with SCD were reviewed for YAPFAQ documentation frequency before and after the intervention.

Results: Staff knowledge of who completes the YAPFAQ increased after the intervention, ($p < .001$). YAPFAQ documentation decreased after the intervention, ($p < .001$). Qualitative analysis identified personal, physical, and patient barriers to completing the YAPFAQ and multiple recommendations to change the method of documentation in the electronic health records (EHR).

Conclusions: Although the staff expressed high interest in utilizing the YAPFAQ, application was inhibited by delayed translation to the EHR. The YAPFAQ continues to hold high potential for directing nursing care, but requires staff investment for clinical practice change.

Practical Applications: A seamless integration between nursing education and translation through EHR is recommended as technology continues to integrate into nursing practice.

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Introduction

A vaso-occlusive episode (VOE) presents as a challenging and devastating complication of sickle cell disease (SCD). These intense periods of pain characterize this inherited disorder that affects 1 out of 365 African American births and 1 out of every 16,300 Hispanic births in the US (Centers for Disease Control and Prevention, 2016). The episodes make up the most prevalent complication of SCD and cause of hospitalization for these pediatric patients (Ballas, Gupta, & Adams-Graves, 2012; Fosdal & Wojner-Alexandrov, 2007). A VOE occurs when the

sickle-shaped red blood cells stick together and impede blood flow, causing tissue ischemia and severe pain. Guidelines in a 2014 report from the National Heart, Lung, and Blood Institute (NHLBI) cite the primary interventions for managing a VOE to include: 1) an accurate pain assessment; 2) pharmacological pain management including NSAIDs and opioids; 3) hydration; 4) blood transfusions; and 5) non-pharmacological therapies such as heat application and distraction techniques (U. S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, 2014).

Chronic and recurrent acute episodes of pain can be debilitating and influence sleep patterns, emotional functioning, and physical activity levels (Brandow, Brousseau, Pajewski, & Panepinto, 2010; Jacob et al., 2006; McGrath et al., 2008). In order to determine pain recovery in the SCD population, the current standard of care is to quantify pain intensity using an established pain scale. Although pain scales can be helpful in determining the effectiveness of interventions, those with chronic and recurring pain may not have a change in pain intensity.

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Additionally, established pain scales are often ineffective in facilitating the management of pain in those with SCD as the pain is poorly understood by providers and treatment may be overruled by provider perception (Puri et al., 2016; Shapiro, Benjamin, Payne, & Heidrich, 1997). By turning our attention to include an assessment of functional ability in this population, we can provide an innovative way to assess and support the self-management of pain and activities of daily living (ADLs).

In 2005, Roth-Isigkeit, Thyen, Stöven, Schwarzenberger, and Schmucker (2005) surveyed children and adolescents with chronic pain, finding that 68.2% reported functional immobility and limitations in performing ADLs. The Pediatric Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (PedIMPACT) recommended that assessment of pain measurement include the evaluation of functional disability and recovery (McGrath et al., 2008). Prior to 2014, there was no established assessment of physical function in children with acute pain in the hospitalized setting. Zempsky et al. noted this gap in 2013 and subsequently developed the Youth Acute Pain Functional Ability Questionnaire (YAPFAQ) to be administered to children admitted to an inpatient setting with acute pain (Zempsky et al., 2014, 2013). This tool is self-administered by the patient to measure the amount of difficulty experienced in performing ADLs, such as changing clothes or getting out of bed.

Considering the significant role of the nurse in assessing and treating pain as well as promoting functional ability, use of this tool may have great implications for the future assessment and treatment of acute and chronic pain. However, nurses' knowledge and use of this tool at the bedside has not been investigated and, therefore, the consistent utilization of the tool has not been assessed. The aim of this quality improvement project was to investigate if hospital staff could reliably and consistently document how function changes during the admission of a patient with VOE using the YAPFAQ after an educational intervention.

Methods

Design

A multiple methods design was used to meet the aim of this quality improvement project. In this design, we examined staff's knowledge and understanding of the YAPFAQ through quantitative and qualitative methods, before and after an educational presentation. Additionally, data from retrospective chart reviews were collected to assess the frequency of documentation of the YAPFAQ before and after the staff intervention.

David Kolb's theory of experiential learning provided the theoretical framework for our educational intervention. Kolb's (1984) theory conveys that "learning is the process whereby knowledge is created through the transformation of experience" (p. 38). This theory is comprised of a cycle that incorporates four different learning steps including concrete experience, reflective observation, abstract conceptualization, and active experimentation. By using this theory to develop an educational intervention, our study "touches all the bases" of the cycle in order to meet all learners' needs (Kolb, 1984, p. 38). Table 1 displays the application of Kolb's theory to our educational intervention.

Setting and Sample

This study took place at a children's hospital in the northeastern United States which provides care for over 200 patients with SCD annually, from infants to young adults. The study was conducted on an inpatient unit that typically sees an average of 20 patients diagnosed with SCD per month. Approval from the Institutional Review Board was attained prior to the start of this study. Support from the hospital's nursing management team and Institute of Nursing Research was also acquired. The final sample included 22 staff participants in the educational intervention and the semi-structured group discussions.

Table 1
Application of Kolb's theory of experiential learning.

Learning style	Activity	Content
Concrete experience; Reflective observation	Slideshow presentation	Explanation of YAPFAQ tool purpose, background, and concrete demonstration
Reflective observation; Abstract conceptualization	Semi-structured group discussion	Discussion of identifying the best ways to consistently and reliably implement the YAPFAQ tool at the bedside and current barriers to clinical application
Active experimentation	Clinical utilization of the YAPFAQ tool	Retrospective measurement of YAPFAQ tool usage 3 months before and 3 months after the educational intervention

Instruments

YAPFAQ

The Youth Acute Pain Functional Ability Questionnaire (YAPFAQ) was developed in 2014 to evaluate the functional limitations of children older than age 7 while hospitalized with acute pain, including various disease processes and post-surgical pain. It is a twelve-item 5-point Likert-type scale which is completed as a self-assessment by the patient. A higher score implies greater functional disability in performing daily tasks, with a minimum score of 0 and a maximum score of 48. After development, the tool has been tested with high internal consistency, Cronbach's $\alpha = 0.92$, and strong test-retest reliability, $r = 0.82$. The tool has also demonstrated moderate construct validity ($r > 0.30$) (Zempsky et al., 2014).

As part of routine care at the study site, the YAPFAQ is ordered to be administered daily in the afternoon to children with SCD who have an inpatient diagnosis relating to an acute pain process, as shown in the worklist of the electronic health record (EHR). A paper version of the YAPFAQ is available for staff to hand to patients so they may independently complete the tool and return their responses to the staff member to be documented in the EHR. At the time of the study, only nursing staff had access to document the YAPFAQ in the EHR, although both registered nurses (RNs) and patient care assistants (PCAs) were permitted to administer the YAPFAQ to a patient. No previous education had been completed on administration of the tool and, therefore, integration into staff workflow was inconsistent.

Staff YAPFAQ Tool Assessment

This survey was study-specific and developed by the quality improvement team. This assessment was comprised of 20 questions which collected demographics, opinions regarding assessing and documenting functional ability for patients with SCD, and multiple-choice questions on participant's knowledge on using the YAPFAQ tool. The 5 opinion questions were each measured by a 5-point Likert-type scale (1 = strongly disagree to 5 = strongly agree). Examples of these questions include, "it is important to assess functional ability for someone with SCD" and "it is important to document functional ability for someone with SCD".

Staff Intervention

Staff were recruited to participate in the educational intervention through means of direct communication including personal recruitment with researchers, recruitment fliers posted in the staff breakroom, and the inclusion of a recruitment post in the weekly staff email. Staff met inclusion criteria if they were actively working on the unit during the study timeframe. RNs as well as PCAs were both recruited to participate over the course of 4 weeks in January 2016. The decision to include PCAs was made after consulting a primary author of the tool, who clarified that since the YAPFAQ is a patient self-report tool, it may be

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