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Identifying and Improving Developmental Delays in Children Within Central America

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Executive summary

Introduction of the Problem

It is estimated that more than 40% of children living in low-income countries worldwide are at an increased risk of not reaching developmental milestones (Gil et al., 2020). Identifying children with developmental delay on short term medical missions (STMM) can be challenging for healthcare providers whose specialty is not pediatrics and who are unfamiliar with the culture of the area to which they are traveling. Nurse practitioners and nurses serving on medical mission trips with one non-for-profit medical mission agency report difficulty catching missed or delayed milestones in children between the ages of 1-3 years old in Central America due to lack of pediatric experience in their practice. These providers expressed a lack of confidence in their ability to identify whether children within this age group are the correct size and weight for their age.

Literature Review

It is suggested that low socioeconomic status is directly related to a child's cognitive ability (Ibáñez-Alfonso et al., 2021). In Guatemalan children in particular, studies suggest that children living in vulnerable, poverty-stricken environments significantly underperformed in the areas of language, fine motor, and attention compared to their non-vulnerable counterparts (Ibáñez-Alfonso et al., 2021). Early intervention is necessary to attempt to prevent this from happening. Parents need to be provided with the necessary resources and education on how to improve their child's growth and development. Simple tasks are suggested to help improve the development of children, including talking to children often, asking them simple questions and

waiting for their response, giving them small objects to stack on top of one another, and reading books with pictures together (UNICEF, n.d.). Interactive reading is one of the biggest tools by which a parent can help improve the cognitive development of a child, and it is suggested that starting early and frequently reading together is the most effective approach (Protzko et al., 2013).

The Survey of Wellbeing of Young Children (SWYC) is a tool used to evaluate the development of children which has been effective at correctly identifying developmental delay among Hispanic children. It can be translated into different languages and has shown to be successful at evaluating developmental milestones in children within Latin America (Guimarães et al., 2022). This tool is designed as a 54-question parent-driven survey evaluating language, motor, and cognitive ability in children aged two to 60 months. According to Gerdes et al. (2019), “The SWYC is a promising tool for identifying Hispanic children with developmental delays.” This tool has been shown to detect a high percentage of Hispanic children with developmental delays, especially in language skills (Gerdes et al., 2019). The SWYC is free to the public, easily accessible, and quick to use, requiring only 5-10 minutes to complete (American Academy of Pediatrics, n.d.).

Methods

The purpose of this project was to (a) educate providers on short-term medical missions on appropriate growth and developmental milestones for children ages 1-3 years, (b) determine a short and effective screening tool to use in practice to assess development, and (c) supply these providers with evidence-based, accessible tools needed to teach parents how to improve the development of their children. The long-term goal of this quality improvement project was to

improve knowledge surrounding pediatric growth and development for providers on STMM and improve children's development within Guatemala.

A self-paced module was created, using the Articulate learning platform, surrounding education on pediatric developmental milestones for children ages 1-3 years old. This module also included information on the SWYC screening tool, and the most common and effective tools and interventions used to help improve developmental delays. Once complete, a brief tutorial on how to use the module was presented to providers during a pre-trip meeting a few weeks before the STMM was set to begin. Information about this quality improvement project's background and pre/post quiz expectations were also presented at the pre-trip meeting.

On May 2, 2023, the Institutional Review Board (IRB) of Southern Illinois University Edwardsville determined this project to be a quality improvement project and not Human Subjects Research.

Evaluation

Several tools were utilized to evaluate whether project objectives were successfully met. To gather quantitative data, both pre- and post-education quizzes were created within Qualtrics surrounding the content presented in the educational module. Before material was presented within the educational module, all medical staff who were attending the STMM (short term medical mission trip) to Guatemala were prompted to fill out a 10-question multiple choice quiz surrounding their knowledge of pediatric developmental milestones, developmental screening tools, and interventions used to improve child development. Immediately after the educational module, the same 10-question quiz was presented to the STMM medical staff to evaluate whether the module improved their knowledge of the topics presented.

In addition, qualitative data was necessary to gather project implementation feedback. On

the final day of the STMM in Guatemala, a physical paper survey was given to medical staff. This survey consisted of three questions assessing their confidence level in screening for delays, usability of the screening tool, and overall ability to apply information from this project to future practice. These questions were asked in a Likert scale, agree, or disagree format. Three open-ended questions were also included in this survey to allow for opinions on improvement and overall feedback on the project.

Results from the pre and post- module quizzes were positive overall. A total of 17 individuals completed the pre-education quiz. The average score for pre-quizzes taken before the educational module was roughly 73%. After completion of the educational module and becoming familiar with the material surrounding developmental milestones, 11 people completed the post-quiz. Results from the post-quiz showed an average score of 94%. These results suggest roughly a 28% increase in knowledge on pediatric developmental milestones after being presented with an online learning module.

Results

from the feedback survey conducted on the last day of the mission trip were overall positive. Concluding the STMM, 11 individuals completed feedback surveys total. Of all surveys completed, 10 out of 11 reported that the educational module helped them feel more confident when screening for developmental delays in children, with one person responding “neutral”. Out of all 11 surveys, 100% of responders reported that they feel they will be able to utilize information learned in this project when moving forward in practice. When asked about the usability of the SWYC screening tool in practice, 30% of responders reported that they did not feel the survey was quick or easy to use in this setting. Overall, written feedback provided from responders suggested that the educational module, as well as the books provided to the pediatric patients screened, were beneficial in both identifying and improving developmental delays.

Feedback suggested several problems with the SWYC screening tool, suggesting that it was too complicated, lengthy, or not user friendly due to low health literacy level of the patient population.

Limitations

There were several limitations in evaluating project outcomes. One problem was the return rate of the post-educational quiz. There were 17 individuals who completed the pre-education quiz, but only 11 individuals completed the post-education quiz, potentially skewing accuracy of results. It is difficult to pinpoint the reason for the discrepancy in response rates, however it may be due to individuals starting the module and not completing it in one sitting, then returning later to complete it, leading to a duplicate pre-quiz entry. Another major limitation within this project was that a substantial portion of the patient population being seen on this STMM have low literacy levels, which made it difficult to complete the SWYC screening tool appropriately, even when translated to Spanish.

Impact on Practice

Clinical impact was almost immediate upon implementation and cultivated a space for medical providers to improve their knowledge on pediatric milestones and developmental delays. Several children encountered on this STMM were suggested to be developmentally delayed, and educational resources provided to them during clinic days, including books and crayons, aim to help improve their speech, language development, and fine motor skills. Moving forward in practice, providers will likely have an increased knowledge base surrounding red flags in pediatric development to intervene quickly to improve delays. Long term impact of this project aims to continue to educate medical providers on pediatric developmental milestones before

STMM to assist in identifying and improving developmental delays in pediatric patients within the most culturally appropriate way.

Conclusion

The Pediatric Developmental Milestones online educational module was designed to help improve medical professionals' knowledge of pediatric developmental milestones in children ages 1-3 years old, as well as educate them on techniques to improve delays in culturally appropriate ways while on short term medical mission trips. This module accomplished this goal, and survey results suggested that provider knowledge base increased post-education. Although the SWYC was not suggested to be the most effective form of developmental screening for this patient population, one is hopeful that interventions and educational resources provided to pediatric patients during this project, including books and crayons, will help foster and improve development among these pediatric patients. Moving forward, aiming to improve developmental delays within other age groups on these STMMs (Short term medical mission trips) is recommended.

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