Facilitators and Barriers to the Implementation of Bilingual and Bicultural Navigation Programs

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Abstract

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Background: Evidence-based interventions developed in research environments face challenges when translated to real-world clinical settings. Patient navigation programs are valuable for improving clinical outcomes among children, but knowledge gaps remain regarding contextual factors influencing the implementation of culturally tailored navigation programs. To address this gap, we examined factors that facilitate or hinder the implementation of a bilingual and bicultural navigation program for caregivers of Hispanic children with traumatic brain injuries.

Methods: In-depth interviews were conducted with 12 personnel involved in implementing the 1st Brain Injury Education and Outpatient Navigation (BIEN) program for caregivers of Hispanic children with traumatic brain injuries within four states, and additional personnel working on similar programs within the same sites. The Consolidated Framework for Implementation Research (CFIR) guided the development of the interview guide and data analysis. We conducted a directed content analysis using deductive and inductive coding processes based on CFIR with two independent coders.

Results: Participants identified facilitators and barriers across four domains: innovation, outer setting, inner setting, and individuals. Key facilitators included the program's relative advantage over existing practices, adaptability, patient navigator’s communication skills and experience, and alignment with organizational culture and values. Barriers were related to restrictive policies, insufficient office space, incomplete and delayed medical record documentation, and gaps in navigator training.

Discussion: These findings offer insights to guide the development and optimization of patient navigation programs that address the unique needs of Hispanic children and families, supporting health systems in reducing access and outcome disparities for children with brain injuries.

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Introduction

Many health interventions are developed and tested in a research environment where inner and outer setting conditions are tightly controlled by the research team. Translating these interventions to real-world clinical settings takes an average of 17 years and requires an understanding of inner and outer contextual factors to facilitate sustainable adoption.[1–3] One type of intervention is patient navigation, which is particularly important for children with traumatic brain injuries (TBI). TBI is a leading cause of acquired disability among children in the United States, with Hispanic children experiencing higher rates of severe injuries and worse outcomes compared to non-Hispanic children.[4–6] Despite the disproportionate burden of TBI on Hispanic children, there is a lack of culturally tailored interventions that address the specific needs of this population.[6]

Patient navigation (PN) is a service model that guides patients through the complex healthcare system and helps them overcome barriers to care.[7] Initially introduced to support cancer patients, PN programs have since evolved to address a wide range of health conditions and populations.[8,9] These programs have emerged as valuable strategies for improving clinical outcomes, particularly among children facing higher levels of vulnerability due to socioeconomic disparities, lower health literacy, and self-efficacy challenges.[10–13] The success of these programs often hinges on their adaptability to meet the unique needs of the target population.

Several studies have demonstrated patient navigation as an effective strategy for improving outcomes among Hispanic populations.[14–16] Building on this evidence, the multi-center 1st Brain Injury Education and Outpatient Navigation (1st BIEN) study represents the first patient navigation program for Hispanic children with traumatic brain injuries.[6] The success of this pioneering program relies heavily on the tailoring and fit within the implementation contexts. However, there remain critical knowledge gaps regarding the contextual factors that influence the implementation of patient navigation programs for Hispanic children.

As PN programs have been increasingly implemented in various clinical settings to address health disparities and improve access to care, several studies have assessed the implementation facilitators and barriers of these programs. A comprehensive scoping review identified several key elements that influence PN program implementation, such as aligning the program with organizational needs, securing adequate funding, engaging a multidisciplinary team, establishing clear workflows and communication channels, garnering stakeholder buy-in, and leveraging in-kind resources.[7] The findings of this scoping review provide implementation considerations for PN programs across care settings and highlight the need for strategies to overcome practical and logistical issues. However, there has been inadequate knowledge to understand PN implementation barriers and facilitators in clinical settings directed at racial and ethnic minority groups, as existing navigation programs have primarily focused on English-speaking adult populations to address chronic conditions such as colorectal cancer.

The current study addresses the gap in literature in several ways. First, it focuses on the bilingual and bicultural aspect of Hispanic populations, where the PN is conducted entirely in Spanish or English. Second, it includes children and their caregivers, recognizing that children are dependent on their caregivers for accessing healthcare. Finally, the study emphasizes the transition from short-term acute care to the necessary long-term rehabilitation care in the community, that a child experiences following a traumatic brain injury. Timely and consistent rehabilitation in the community is key to decrease disability since most of the functional gain happens in the first 3-6 months after injury.[17,18] Therefore support to families and children transitioning from the hospital to community settings is paramount. Considering that a quarter of children in the U.S. are Hispanic and traumatic brain injury is a leading cause of acquired disability in children,[4,5,19] it is imperative that bilingual and bicultural navigation programs effectively improve access to healthcare in this population. We aim to identify institutional contextual factors (e.g. structures, processes, culture, resources, etc.) in hospital settings that facilitate or hinder the implementation of bilingual and bicultural navigation programs for caregivers of Hispanic children with traumatic brain injuries.

Methods

Study Setting and Design

This is a qualitative study using the Consolidated Framework for Implementation Research (CFIR) framework to guide the identification of barriers and facilitating factors for the implementation of bilingual and bicultural navigation programs for families of children with TBI. We conducted semi-structured interviews with personnel involved in implementing the 1st BIEN program. 1st BIEN is a culturally and linguistically appropriate brain injury education and navigation intervention, aimed to improve parental health literacy and self-efficacy, optimize access and adherence to rehabilitation, and ultimately improve health outcomes among Hispanic children. The participating sites for this program were Harborview Medical Center and Seattle Children's Hospital in Seattle, Washington; Doernbecher Children's Hospital in Portland, Oregon; Primary Children's Hospital in Salt Lake City, Utah; and Children's Medical Center in Dallas, Texas. We also interviewed personnel working on similar bilingual and bicultural navigation programs within the same sites as the 1st BIEN parent project.[6] We included personnel outside the 1st BIEN program to better understand institutional contextual factors.

The CFIR is a practical tool for systematically evaluating the barriers and facilitators involved in implementing interventions in organizational settings.[20] The CFIR identifies 48 determinants across five domains: innovation, outer setting, inner setting, individuals, and implementation process. Informed by our prior work with Hispanic families of children with TBI, we adapted the CFIR framework to fit the context of the 1st BIEN intervention, focusing on contextual factors relevant to the rehabilitation needs and support for children with TBI and their families, along with the CFIR constructs within the outer setting, inner setting, and characteristics of individuals (figure 1). The framework was adapted to the target population of Hispanic children and the transitional care nature of the navigation program, which involves moving from the hospital to the community setting. In this adapted framework, we focused on four of the five CFIR domains, excluding the process domain. The process domain was not included in our analysis as it focuses on the active change process, which was not the primary focus of our study. Instead, we aimed to identify the contextual factors that influence implementation success. CFIR domains and constructs guided the development of the questions for the interview guide and data analysis.

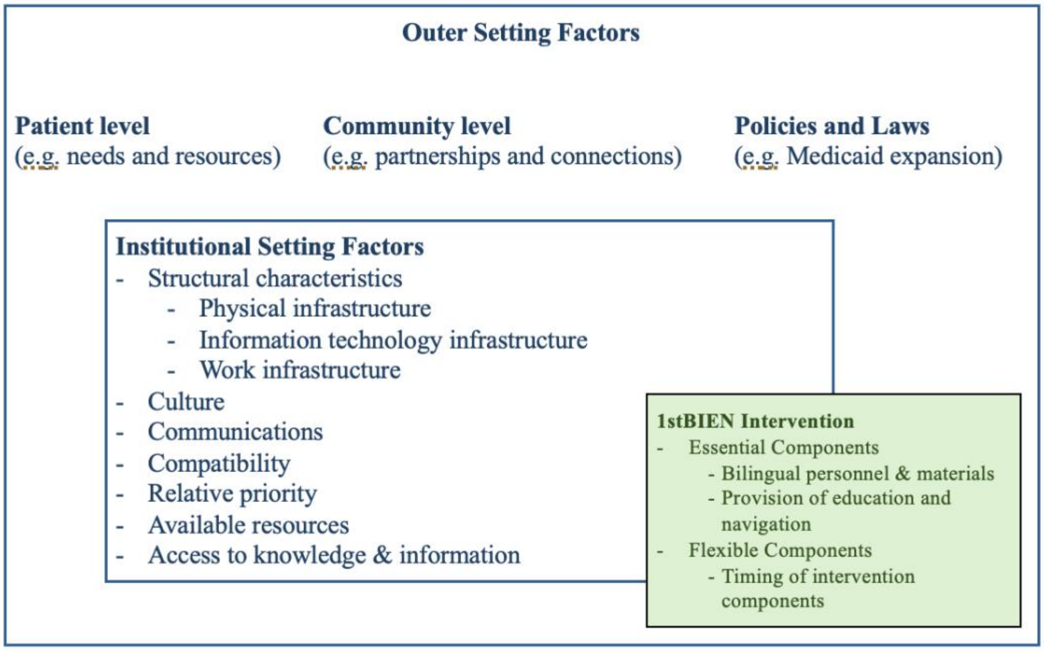

Figure 1. Conceptual Model

Participant Selection

We used purposive sampling to recruit patient navigators and stakeholders (e.g. physicians, hospital administrators, etc.) involved in the implementation of the 1st BIEN project or cultural navigation programs. A research assistant contacted eligible participants by email or was introduced to potential participants via email by a 1st BIEN staff member. Eligible participants were individuals involved in the implementation of the 1st BIEN project or a cultural navigation program. All 12 individuals who were contacted agreed to participate (100% response rate). The research assistant then arranged interviews with the participants who expressed interest and agreed to take part in the study. Participants received a compensation of $25 for taking part in the study.

Ethical Approval

This study was approved by the institutional review board at the University of Washington (STUDY00019361) and at Seattle Children's (STUDY00004731). Participants in the study gave their verbal consent prior to participating in the study.

Data Collection

All study participants participated in a semi-structured interview virtually via HIPAA approved virtual platform Zoom. A research assistant trained in qualitative research methods interviewed participants in English. Interviews were conducted between February and April 2024 and ranged from 30-60 minutes in length. For one of the participants expressing an interest in elaborating further, a follow-up interview was scheduled. Audio was recorded and then transcribed by a professional service. A semi-structured interview guide was created and utilized to ask questions in relation to four of the CFIR domains; innovation, outer setting, inner setting, and individuals. Some of the questions were about how the organizational structure, communication, partnerships/connections outside the organization, intervention adaptability, and organizational culture impacted the implementation of 1st BIEN or bilingual and bicultural navigation programs. Questions were also tailored to stakeholders depending on their role directly working with patients or overseeing the program as an administrator. For example, a hospital administrator was asked, “What kind of changes in the operations are needed to put 1st BIEN in routine care?” On the other hand, a patient navigator was asked, “If you were implementing 1st BIEN in routine care, what changes would you make in any system of the hospital?”

Data Analysis

We used a directed content analysis technique described by Hsieh and Shannon.[21] Interview transcripts were analyzed using both deductive and inductive coding processes. Deductive codes were derived from a pre-established codebook developed by the CFIR research team and updated to follow the 2022 framework.[20,22] This codebook, previously utilized by other researchers,[22] included codes such as "access to knowledge and information," "communication," "culture," "adaptability," and "relative advantage." Following the deductive coding, we applied inductive subcategory codes to capture specific details within participants’ responses. For instance, under the “relative advantage” code, an inductive subcode was “bilingual and bicultural staff.” Additionally, we denoted whether the deductive codes represented barriers (-) or facilitators (+) to implementation.

The analysis of the 12 interview transcripts involved an iterative consensus coding process using Dedoose version 9.2.006 software. Two members of the research team independently coded all transcripts. After each transcript was coded, they met to review each other's coding, discuss any discrepancies, and reach an agreed-upon resolution. Once the coding was complete, a researcher examined the applied codes for each of the CFIR domains and constructs. They merged and regrouped similar codes and analyzed the frequency of code occurrences. Then, they identified the key barriers and facilitators impacting the implementation process for each of the CFIR domains and constructs.

Results

Participants included 12 staff involved in various aspects of the implementation plan, such as delivering, overseeing, and monitoring the program. As summarized in Table 1, all participants were female and had an average age of 40 (SD=11.9). Participants were patient navigators or case managers (n=7), patient navigator supervisors or care management supervisors (n=2), clinical research coordinator (n=1), and physicians (n=2).

Table 1 Characteristics of Study Participants

Characteristic	**Study Participants (N=12)**
Age, mean (SD)	40 (11.9)
Gender, n (%)	
Male	0
Female	12 (100)
Race, n (%)	
White	5 (41.7)
Black or African American	0
American Indian or Alaska Native	1 (8.3)
Asian	0
Native Hawaiian or Other Pacific Islander	0
More than one race	1 (8.3)
Other	5 (41.7)
Ethnicity, n (%)	
Hispanic, Latino/a/x	9 (75)
Not Hispanic, Latino/a/x	3 (25)
Role, n (%)	
Patient Navigator/Case Manager	7 (58.3)
Patient Navigator Supervisor/Care Management Supervisor	2 (16.7)
Clinical Research Coordinator	1 (8.3)
Physician (Pediatric Intensivist Physiatrist)	2 (16.7)
Years of clinical experience, mean (SD)	14.1 (9)
Languages spoken,* n (%)	

English	12 (100)
Spanish	8 (66.7)
Portuguese	1 (8.3)
French	1 (8.3)

* Column percent's may not add up to 100% because categories are not mutually exclusive.

As summarized in Table 2 and detailed later, we identified several facilitators and barriers within each of the four CFIR domains. Findings related to the innovation domain are described first, followed by factors within the outer setting, inner setting, and individuals' domains.

Domain I: Innovation

Relative Advantage

The implementation of bilingual and bicultural navigation programs was influenced by three constructs within the CFIR's innovation domain: relative advantage, adaptability, and complexity. In terms of the relative advantage of the intervention there are several facilitators. The first is that the bilingual and literacy relevant education materials enhances families' understanding of the health issue more effectively than existing resources. When participants were asked how the 1st BIEN intervention compares with other existing navigation programs or routine care, they described how offering the educational material in the families' preferred language helps them understand traumatic brain injuries better than the resources currently available. For example, one participant said:

> *We have offered the booklet in English and in Spanish. So, whether the parent prefers one language or the other, we have both… The nice thing about the booklet and the videos is that it's not too focused on medical terminology. So, many people who have, I want to say, a sixth or eight grade level of reading or education, it's understandable to a wide network. Which is a great way that they ended up wording the booklet and the videos to be able to inform and educate a wide span of people. -ID09*

Another facilitator that was related to relative advantage is that the patient navigators have more time to educate families compared to current practice, filling the gap of providers who often lack sufficient time to do so thoroughly during clinical encounters. One participant described how a unique aspect about the intervention is that patient navigators can spend more time with families than they typically can in current practice. This ensures that families can better understand the signs and symptoms of a traumatic brain injury and the type of traumatic brain injury the child has, as providers may not spend sufficient time with families to properly provide education to them.

The last facilitator related to the relative advantage of the intervention was that the education materials were culturally relevant, including images and language commonly used among Hispanic communities. One barrier identified was that the intervention is limited to three months, missing longer-term navigation support which is sometimes required. This is in contrast with traditional hospital patient navigation programs where families receive support for longer periods of time.

Adaptability

One facilitator described by some participants was the personalized nature of the educational materials by checking off boxes about specific injuries in the booklet. Another facilitator was that the intervention enables them to adjust the sequence and timing of delivery of pieces of the intervention (mostly educational videos) to accommodate patient needs. For example, a participant stated:

> *I kind of look to see what appointments they have coming up, and tailor it that way, like I'll send the speech (education video about speech therapy) one before they have their first speech therapy appointment, or their physical therapy one. Yeah, I think the first one*

> *is just like, "What is a TBI?" And so, that one is always first, for sure. But the rest of them, I kind of move them around, depending on what is coming up for them, with regards to follow-up. -ID01*

Complexity

Most participants described the intervention as being relatively simple and highly adaptable for families, which facilitated program implementation. One participant described how the intervention is straightforward because families have one clear point of contact (patient navigator) to help coordinate follow-up appointments and communicate with various groups during their child's recovery. Another participant described how easy it was for families to understand and know what the program entailed because the patient navigator communicated this explicitly to families. For example, a participant stated:

> *For the families, I would say it's not complicated. I would say on a scale of 1 to 5 for complexity, one being not complicated, five being the most complicated, I would say it's probably a two because it's pretty easy to understand for the families... The way to explain it to the families was something that was approachable, and the families knew exactly what was going to happen when, as long as the patient navigator communicated that well. -ID07*

Table 2 Summary of findings by Consolidated Framework for Implementation Research (CFIR) domains and constructs

I. Innovation Domain		
Construct name	**Construct definition*** *The degree to which:*	**Contextual factors affecting implementation**
Relative Advantage	The intervention is better than other available programs or current practice.	**Facilitator 1**: Bilingual and literacy relevant education materials enhances families' understanding. **Facilitator 2:** Patient navigator's (PN's) have more time to educate families, filling the gap of providers who often lack sufficient time to do thoroughly during clinical encounters. **Facilitator 3:** Culturally relevant education materials.
		Barrier 1: Intervention is limited to 3 months, missing longer-term navigation support.
Adaptability	The intervention can be modified, tailored, or refined to fit local context or needs.	**Facilitator 1**: Personalized nature of the educational materials (e.g., customizable booklets). **Facilitator 2:** Intervention allows to adjust the sequence and timing of delivery to accommodate patient needs.
Complexity	The intervention is perceived as complicated.	**Facilitator 1:** Intervention is straightforward and uncomplicated for families.
II. Outer Setting Domain		
Policies and Laws	Legislation, regulations, guidelines, accreditation standards, allow implementation and/or delivery of the innovation.	**Barrier 1:** Restrictive policies, limited funding, coverage gaps. **Barrier 2:** Hesitancy to apply for public assistance programs due to immigration concerns creates significant barriers for non-U.S. citizen children with medical needs to access healthcare.
Partnerships and Connections	The Inner Setting is networked with external entities (e.g., referral networks).	**Facilitator 1:** Pre-existing relationships with external organizations (schools, community health providers) facilitates coordination and implementation.
		Barrier 1: External agencies' policies restrict PN's ability to coordinate services on behalf of patient/parent.
III. Inner Setting Domain		
Structural Characteristics	Infrastructure components support functional performance of the Inner Setting.	**Barrier 1:** Incomplete and delayed medical documentation in information systems, hinders timely engagement with families.
Culture	There are shared values, beliefs, and norms across the Inner Setting.	**Facilitator 1:** An organizational culture centered on serving underserved pediatric populations and promoting health equity.
Compatibility	The intervention fits with workflows, systems, and processes.	**Barrier 1**: The organization's risk-averse and strict compliance regulations create challenges in implementing the text messaging component of the intervention.
Available Resources	Resources are available to implement and deliver the intervention.	**Facilitator 1:** Sufficient funding to support the program's operation (e.g. educational materials, navigators' time).
		Barrier 1: Insufficient office space within clinical setting hinders face-to-face interactions with families, requiring telephonic communication and hybrid schedules.
Access to Knowledge & Information	Guidance and/or training is accessible to implement and deliver the intervention.	**Facilitator 1:** Access to shadowing opportunities and weekly meetings with navigators from other sites provided valuable knowledge and information.
		Barrier 1: Gaps in training for PN's in providing emotional support to families.
IV. Individuals Domain		
Intervention (Innovation) Deliverers	Individuals who are directly delivering the intervention.	**Facilitator 1:** PN's who are bicultural and bilingual (English and Spanish), that understand cultural norms and experiences. **Facilitator 2:** Prior experience working in healthcare or with the target population provides valuable cultural insights, enabling better support to families. **Facilitator 3:** Strong communication, interpersonal, and problem-solving skills are essential for navigators to assist families.
Intervention (Innovation) Recipients	Individuals who are participating in the intervention.	**Barrier 1:** Gaps in knowledge of support systems for families. **Barrier 2:** Family/patient vulnerability with social complexity (before the injury).
Other implementation support	Individuals who support the implementation team members implement the innovation.	**Facilitator 1:** Committed individuals within the organization who understand the importance of navigation services for vulnerable families.

*Modified from CFIR

Domain II: Outer Setting

Policies and Laws

The implementation of a bilingual and bicultural navigation program for Hispanic children with traumatic brain injury was influenced by two constructs within the CFIR's outer setting domain: policies and laws and partnerships and connections. Several barriers were identified under the policies and laws construct.

The first barrier is that restrictive policies, limited funding, and coverage gaps hindered access to necessary healthcare services that patient navigators were trying to help connect Hispanic families with, making it challenging for the 1st BIEN program to effectively support these families. One participant highlighted the significant hurdles faced by non-U.S. citizen children with medical complexities:

> *Yeah, so they're definitely a higher risk. So, there is a program that you can get on a wait list if you have medical complexity and are not a U.S. citizen. It is a very long wait list and it's 3 to 5 years to come off of that wait list. It just depends what funding the state has given to the bucket. So, those children are higher risk. -ID08*

Another barrier identified is the hesitancy among some families to apply for federal and state assistance programs for children with TBI, due to concerns that they may not qualify because of their immigration status. This hesitancy creates challenges for 1st BIEN patient navigators when trying to connect non-U.S. citizen children to healthcare services that could improve their outcomes after a TBI. Some families may be reluctant to enroll in the 1st BIEN project. One participant described how immigration policies and families' familiarity with healthcare coverage, including their eligibility for the 1st BIEN project, can impact their engagement with the healthcare system and their willingness to participate in the navigation program. Another participant mentioned that while some states, such as Washington, provide coverage for low-income families, challenges still arise when certain services are not covered by Medicaid or when transportation assistance is needed. Families' immigration status can also lead to skepticism about applying for assistance, as expressed by one participant:

> *I think speaking from Washington state, all the families I worked with were covered with Molina or Apple Health. So, I think Washington state as a whole is more open to supporting these types of families with low resources. But it's always challenging, especially when there's things that are not covered by Medicaid, or transportation, families would live three hours or four hours away from the main hospital, and they're not working so they need money. So, we filed some paperwork with a family, but then because of their status here in the country, they were skeptical about applying or not." - ID03*

Partnerships and Connections

One facilitator identified is that pre-existing relationships with external organizations, such as schools and community health providers enable coordination and implementation. One participant emphasized that having pre-existing relationships with schools and other external organizations is just as crucial as internal relationships for the success of the navigation program. These established partnerships facilitate smoother coordination and implementation of the intervention. The participant explained that these external relationships help navigators quickly connect families with the necessary support services and ensure an easier transition from hospital to community settings.

However, a significant barrier identified in this construct is the policies of external agencies that restrict patient navigators' ability to coordinate services on behalf of patients or parents. Many participants expressed this as an obstacle to program implementation. One participant stated:

> *I've had to do transportation arrangements for some families, looking into their paid medical leave through the state... It can be a little difficult to have those conversations on the phone, because a lot of time they don't want to talk to me; and it's to protect the family member, like the parent, right? That is their policy. They have to talk directly to the to the parent. And so, getting those permissions for me to even be present on the call can sometimes be a little bit difficult. -ID01*

Domain III: Inner Setting

Structural Characteristics

The implementation of bilingual and bicultural navigation programs was influenced by five constructs within the CFIR's inner setting domain: structural characteristics, culture, compatibility, available resources, and access to knowledge and information. One barrier identified within the structural characteristics construct was that incomplete and delayed medical documentation in information systems hindered timely engagement with families. Several participants mentioned how accurate and timely documentation by hospital staff in the information systems was crucial for determining a child's eligibility and facilitating discharge coordination. However, patient navigators often encountered incomplete or delayed medical documentation, making it challenging to effectively engage with families. A participant expressed:

> *Sometimes the medical notes don't include all the information we need, because they either haven't completed the note or submitted. So, it is difficult to know the type of injury; the severity of injury, in our case; or the discharge plan, because we want to get*

> *to families before they discharge. Sometimes that's not really well documented or communicated, so we can potentially miss a family before we get to them. So, they'll discharge them, we'll miss them, and then it's a lot harder to connect with them afterwards, once they're out of the hospital." -ID02*

Culture

One facilitator identified is an organizational culture centered on serving underserved pediatric populations and promoting health equity. Some participants discussed how the organization's mission and values plays an important role in determining whether a bilingual and bicultural navigation program receives support and is implemented. When the organization's culture aligns with the goals of the navigation program, it creates a supportive environment that facilitates the adoption and integration of the intervention. A participant stated:

> *…There's definitely a strong belief in children's health. There's a lot of emphasis on health equity right now, and I think that would help them accept a navigation program, understanding that not all families come from the same background, same environment, and that some families need even more help to successfully get through the medical system. So, I think having that health equity culture, both in the research and hospital, helps people to really support the program." -ID02*

Compatibility

Most participants mentioned that the intervention was compatible with the workflows, systems, and processes of the hospital setting and aligned with the type of work they were doing. However, one barrier identified was that the organization's risk-averse nature and strict compliance regulations created challenges in implementing the text messaging component of the intervention. One participant described how the text messaging component of the intervention wasn't initially compatible with the hospital's processes, but after working on this issue, they were able to get approval and move forward.

Available Resources

Most participants described having sufficient funding to support the program's operation, including the navigator's time and educational materials, which was a facilitator to implementation. However, one barrier identified was the insufficient office space within the clinical setting. This hindered face-to-face interactions with families, requiring navigators to rely on telephone communication and hybrid schedules. A participant expressed:

> *Space has been a challenge. I have 20 staff members and I have eight desks. So, you have to get really creative in doing a hybrid schedule. And so, I don't always get to have that face-to-face interaction with families versus telephonic. I prefer them to be able to be on-campus more so they can have more face-to-face with the families, but we just don't have the space." -ID08*

Access to Knowledge & Information

Participants discussed how the onboarding training they received was helpful and informative, providing them with the knowledge to perform their roles effectively. One facilitator was access to shadowing opportunities and weekly meetings with navigators from other sites, which provided valuable knowledge and information. These experiences allowed navigators to learn from their colleagues, share best practices, and troubleshoot challenges they encountered in their work. Nevertheless, one barrier identified was the gaps in training for patient navigator's in providing emotional support to families. A participant suggests that the role of a patient navigator extends beyond providing education and coordination, and involves offering comfort, motivation, and empathy to families. For example, one participant stated:

> *I almost became like a little therapist at times, like motivating these families. Being a cultural navigator is more than just like teaching a family how to do a thing. You're there for emotional support, which we were not trained to be… I think that would be another thing that I would suggest, like having some kind of emotional support training for navigators, because being a navigator in a hospital setting is emotionally draining. -ID06*

Domain IV: Individuals

Intervention Deliverers

Several facilitators were identified in relation to the intervention deliverers construct. One facilitator for program implementation is that the patient navigators are bicultural and bilingual, with an understanding of cultural norms and experiences. One participant described how being bilingual and bicultural are not the same, and having both is crucial to effectively support families in the intervention. A participant said:

> *I think a great aspect about 1stBIEN is that the patient navigators are bicultural… Sometimes [navigators]… they learn the language, but they are not bicultural. -ID03*

The same participant elaborated on what it means to be bicultural and how this understanding helps navigators connect with families on a deeper level. For example, they stated:

> *I had a caregiver who only worked during the summers packing fruits in [city], and it was an hourly job, very underpaid. So, immediately when her kid had a traumatic brain injury, she lost her job, she didn't have a contract, nothing happened. So, I think culture is very important because you understand the background of the family, their financial situation, how their home works. – ID03*

Another facilitator is that prior experience working in healthcare or with the target population provides valuable cultural insights, enabling better support to families. A participant shared their experience:

> *I worked as a medical interpreter for a little bit before taking on this position. So, having kinda been a communication aid with the Hispanic-speaking community, with respect in the healthcare field. You get to kinda know a bit more about that community and so, you know that they tend to work hard. You know that family is important. You know that there's certain cultural beliefs that they have that once you know, or least show compassion towards, those cultural beliefs, you're able to communicate a bit more freely. The conversation tends to flow a bit better. -ID09*

A third facilitator identified is that strong communication, interpersonal, and problem-solving skills are essential for navigators to assist families. Several participants described how these key skills are important to the successful implementation of the program and the ability to provide comprehensive support to families facing complex challenges. Navigators with well-developed communication and interpersonal skills can build trust and empathize with families. Additionally, strong problem-solving skills enable navigators to identify and address the unique barriers and needs of each family.

Intervention Recipients

Several barriers were identified in relation to the intervention recipients or individuals who participated in the intervention. One barrier is the gaps in knowledge of support systems for families. Many families are unaware of the various resources and services available to them, such as financial assistance programs, transportation options, and community-based organizations that can provide additional support. This lack of knowledge can hinder their ability to access the necessary help and navigate the complex healthcare system effectively.

Another barrier is the family/patient vulnerability with social complexity that existed before the injury. Some families may already be facing significant challenges in their daily lives, such as financial insecurity, housing instability, or limited access to essential services. These pre-existing social determinants of health can further complicate the family's ability to cope with the added stress and demands of a child's traumatic brain injury, as well as increase the complexity of delivering the coordination and navigation components of the intervention. One participant shared an example of how these factors can impact a family's engagement with the intervention:

> *…There was one family that met criteria for patient navigation, and for that family, there were a lot of different factors in place that got in the way of their overall wellbeing, and it wasn't necessarily related back to the child's medical condition, but it did affect whether or not they were able to attend medical appointments, so there were lots of conversations with schools, …community-based providers due to some concerns regarding losing housing, transportation difficulties, and so, there was a lot of communication that happened there. -ID07*

Other Implementation Support

One facilitator identified for successful implementation is the presence of committed individuals within the organization who understand the importance of navigation services for vulnerable families. These staff members are often in leadership positions or have influence within the organization. They can rally support from other stakeholders and secure necessary resources for program implementation. However, not all participants felt they had consistent administrative support, while others reported having support from their leadership. This highlights the variability in organizational support and its potential impact on the success of navigation programs.

Discussion

Principal Results

To our knowledge, this is the first study that evaluates the contextual factors that facilitate or hinder the implementation of a bilingual and bicultural navigation program for Hispanic children. It evaluates a program implemented in a high acuity setting and assesses the transition of care to the community. The study identified several key facilitators, including the availability of culturally and linguistically relevant educational materials, the uncomplicated nature of the intervention for families, and the ability to personalize and tailor the intervention. Barriers included restrictive policies, hesitancy to apply for assistance due to immigration concerns, incomplete and delayed medical documentation, and the intervention's short duration. The study also highlighted the importance of pre-existing relationships with external organizations, an organizational culture centered on health equity, access to shadowing opportunities and weekly meetings for patient navigators to receive support, and the significance of patient navigators possessing certain characteristics, skills, and experiences, such as being bilingual and bicultural, having prior experience working with Hispanic families, and exhibiting strong communication, interpersonal, and problem-solving abilities. These findings fill a critical gap in understanding the specific contextual factors that influence the successful implementation of navigation programs for Hispanic children, particularly in high-acuity settings and during the transition of care to the community. If left unaddressed, the lack of culturally and linguistically appropriate navigation services may perpetuate health disparities for Hispanic children.

Comparison with Prior Work

Our study identified several facilitators and barriers consistent with prior literature on the implementation of patient navigation programs for adult racial and ethnic minority populations that have used the CFIR. However, it is important to note that these previous studies did not employ the updated version of the CFIR, which was utilized in our research.[20] Administrative support and alignment of the organization's culture with the program's purpose and goals were found to be important facilitators in our study, which aligns with the findings of a study assessing a citywide breast cancer patient navigation protocol.[23] The adaptability and tailoring of the program to individual needs were also identified as key facilitators in our study, consistent with the findings of research on a citywide breast cancer patient navigation protocol and a postpartum navigation program for low-income mothers.[23,24]

Our study adds to the current knowledge by addressing the implementation of interventions in bilingual and bicultural settings. We found that bilingual and literacy-relevant education materials enhanced families' understanding, which is a unique facilitator for navigation programs targeting Hispanic populations. Additionally, our study emphasized the importance of navigators possessing strong communication skills, which aligns with the findings of a study on a postpartum navigation program.[24] While the postpartum study identified the importance of a comprehensive training period, our research highlighted specific aspects of the training that participants identified as facilitators, such as the opportunity to job shadow others and participate in weekly meetings with other PN's, which supported program implementation.

Regarding barriers, our study identified limited office space in clinical settings as a hindrance to implementation, which is consistent with the findings of a study on a cancer screening navigation program for Chinese American immigrants.[25] However, while the Chinese

American navigation program faced a barrier related to insufficient language-specific patient resource materials, this was not identified in our study due to sufficient funding, highlighting the crucial role of adequate resources in program implementation.[25] Furthermore, we found that families with high vulnerability and social complexity before the injury pose additional complexity for the program to meet their needs to successfully support and meet patient and family needs, which is consistent with the postpartum study identifying a high patient need level, meaning that patients required more extensive support and resources due to their complex social and economic circumstances.[24] This finding underscores the significance of having navigators who are knowledgeable about patient and community resources and possess strong problem-solving skills to address the diverse needs patients may have.

Limitations

Limitations of this study include its focus on evaluating a research program, which may have additional components related to research that impact program implementation and may not be present in real-world settings. For example, the research program has facilitators, such as adequate funding, that may not be available in non-research contexts. However, the evaluation of contextual factors in this particular research setting can still provide valuable insights to facilitate the implementation of similar programs in real-world practice. Another limitation is the small sample size, and the use of purposive sampling may have introduced sample bias, as participants who agreed to take part in the study might have had more positive experiences or stronger opinions about the navigation program compared to those who did not participate. To mitigate this issue, we invited staff to participate from every site, including those that experienced more challenges in implementation, to ensure a diverse range of perspectives. Additionally, the study focuses on a specific program targeting traumatic brain injury among Hispanic children, which may limit the generalizability of the findings to other populations or health conditions. However, the evaluation of this program provides an opportunity to draw conclusions that are pertinent to a large and growing population group affected by a disease that produces severe disability.

Conclusions

Our study highlights the contextual factors that impact the implementation of a bilingual and bicultural navigation program for caregivers of Hispanic children with traumatic brain injuries. The findings have immediate implications for guiding the effective implementation of the 1st BIEN intervention and offer valuable insights into the development and optimization of similar programs for Hispanic children and families, particularly those focused on transitions from hospital to community settings. Given that a quarter of children in the U.S. is Latino and caregivers play a critical role in accessing healthcare services for their children, understanding the factors that contribute to the success of programs like 1st BIEN is imperative. The insights gained from our study can support other health systems interested in addressing access and outcome disparities for children with brain injury through patient navigation.

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