

Patient Navigation Services in the Rio Grande Valley: Impacts on Clinicians, Students, and Patients

Suleman Saba*, Orta Sabrina, Alvarez Samuel, Garza Miguel, Bouls Ruayda

Faculty Supervisors: John Ronnau, PhD; Shawn Saladin, PhD; Aracely Ramirez, LVN

Internal Medicine, Baylor Scott & White All Saints, Fort Worth, USA

University of Texas Rio Grande Valley (UTRGV) School of Medicine (SOM), Area Health Education Centers (AHEC) Scholars Program, Health Resources and Services Administration (HRSA)

Citation: Suleman Saba, Orta Sabrina, Alvarez Samuel, Garza Miguel, Bouls Ruayda. Patient Navigation Services in the Rio Grande Valley: Impacts on Clinicians, Students, and Patients. *Ann Med Res Pub Health*. 2023;1(2):1-19.

Received Date: 2 September, 2023; **Accepted Date:** 5 September, 2023; **Published Date:** 7 September, 2023

***Corresponding author:** Suleman Saba, Internal Medicine, Baylor Scott & White All Saints, Fort Worth, USA

Copyright: © Suleman Saba, Open Access 2023. This article, published in *Ann Med Res Pub Health (AMRPH)* (Attribution 4.0 International), as described by <http://creativecommons.org/licenses/by/4.0/>.

ABSTRACT

Introduction: Social determinants of health, such as financial instability, lack of a safe and sanitary housing environment, low educational attainment, language barriers, and a high level of disease/trauma burden, have a profound impact on the RGV colonia patient population. These factors continue to adversely impact patient access to needed health care services and contribute to the health disparities seen in the region. To address and mitigate these barriers to quality care, UTRGV SOM, The AHEC Scholars Program, and HRSA have sponsored a student-run patient navigation service initiative for patients of three AHEC Clinics (San Carlos, Bob Clark, and La Victoria). By facilitating communication between AHEC clinicians, patients, and community resources and services, health professions students can improve coordination of care and reduce barriers to care recommendations for patients while also gaining a valuable educational supplement experience.

Methods: A mixed-methods exploratory pilot study was conducted to determine the feasibility and acceptability of this ongoing initiative. Three stakeholder groups of the intervention were surveyed: clinicians, health professions student navigators, and patients. Clinicians and health professions students were administered an online survey via email. Patients who have completed their use of patient navigation services were administered satisfaction surveys via telephone in their preferred language. Each stakeholder group was surveyed monthly for the first three months of program implementation to account for the possible addition of members and/or a shift in opinion over time.

Results: Survey results revealed uniformly positive feedback from clinicians, HCSNs, and patients. This ongoing program intervention is determined to be efficacious and feasible in the lower RGV AHEC clinics. Suggestions for further improvement were qualitatively analyzed and recorded in a sunburst graph to visualize the diversity of opinions. Effective communication and HCSN training were the most substantial categories for change. The

importance of the other domains impacting successful healthcare navigation varied across stakeholder groups, but nonetheless, provide quality feedback for improvement.

Discussion: A centralized effort amongst health professions students, clinicians, and administrative staff of the AHEC Scholars program led to the successful design and implementation of a multidisciplinary healthcare systems navigation intervention to address health disparities experienced by residents of the colonias in the lower RGV. Our data suggest that the HCSN intervention is promising and acceptable to link patients, providers, and community resources to address barriers to care and to instill the importance of addressing social determinants of health for health professional trainees.

Keywords: Interprofessional education; Trainees; Health care; Community engagement; Health disparities; Patient navigation; Healthcare system navigation

INTRODUCTION

Background

Rio Grande Valley (RGV) is the southernmost region of Texas comprised of Starr, Cameron, Hidalgo, and Willacy counties.^[1] Within these counties are lesser-known communities called colonias that exist not only in the RGV but are scattered across states near the United States – Mexico border. Though definitions vary by source, the Texas Office of the Secretary of State defines colonias as residential areas near the border that lack basic living essentials such as utilities, septic systems, paved roads, or safe and sanitary housing.^[2] The population of colonias is predominantly Hispanic, impoverished, and medically uninsured individuals who have limited access to healthcare facilities. Infrastructure plays a huge role in helping low-income and impoverished neighborhoods grow and develop healthy behaviors. On top of the infrastructure issue, the huge “fear factor” of deportation and arrest further harms the residents’ ability to travel to sites where health services can be accessed. To further complicate the issue, most people in and around the colonias lack adequate transportation services. It is evident that these conditions, among other social determinants of health, make access to healthcare difficult for residents of colonias.

There are various health care institutions around the South Texas region that provide healthcare services at low to no cost. However, there are a variety of barriers to access of health care services for the most vulnerable populations, particularly residents of the colonias. Within the past few years, there has been a large increase in the health professional available to the community with the advent of the Texas A&M Higher Education Center in McAllen, the University of Texas at Rio Grande Valley Schools of Medicine, Nursing, Occupational and Physical Therapy and Physician Assistant, and the local vocational schools. Additionally, a community advisory board assembled by the local Area Health Education Center (AHEC) established a need for services for the Hispanic population through observing and conducting focus groups within the community. Success in the promotora, culturally appropriate community health worker, program has improved outreach, intervention, cultural sensitivity, continuity of care, and patient follow up. However, this approach is still progressing, and the fruits of their labor have yet to see improved population health outcomes. There are AHEC clinics throughout the Rio Grande Valley, but there is still such an

alarming high number of uninsured and undocumented people across all corners of the region and the nearby colonias.

One of the initiatives to overcome barriers to provision of quality care in the RGV includes the AHEC Scholars Program, a special affiliation through UTRGV Schools of Medicine, Nursing, Social Work, and the College of Health Professions. The AHEC Scholars Program is dedicated to improving access to primary health care in medically underserved communities and helping reduce shortage of primary healthcare providers in the RGV by exposing professional students to educational experiences in the AHEC clinics.^[3] Medical services are offered to residents at the San Carlos (Hidalgo County), Bob Clark (Cameron County), and La Victoria (Starr County) AHEC sites.

Health Care System Navigators Program

Patient navigation in the United States dates back to the early 1990s as an approach to address health care inequity seen in cancer care, and since then has been utilized nationally and internationally across various disciplines. Since its adoption, the scope of patient navigation services has expanded to include community-engaged navigation, improvements in screening and diagnostic services for particular diseases, and an intervention to assist patients in overcoming barriers of health care.

Our healthcare system navigators (HCSN) program is an adaptation of multilevel patient navigation that utilizes existing local resources in the RGV area to target our patient demographics and help mitigate barriers to health care. There are many hindrances that arise when developing and sustaining an optimal navigation program, including the many complexities of identifying and addressing various social determinants of health. What differentiates our project from those published in the literature is that it is the first to be health professions student-led navigation program and focuses on primary care of lower RGV populations. Working within a bilingual community creates additional challenges when trying to reach the target population because not only should the program information be available in English, but also it should also be provided in Spanish to meet the literacy needs for all residents. As this is a largely Hispanic population, the information and health literacy avenues should be culturally competent. Hispanic communities often are afflicted with high rates of obesity and cardiovascular disease. HCSNs can connect Hispanic communities to resources available in their community to help reduce chronic disease burden. Similarly, by connecting impoverished patients to healthcare resources we not only help patients access care, but we help mitigate their impoverished status by identifying community resources such as free blood pressure screenings, HbA1c screenings, breast exam screenings or reduced self-pay services. Local promotoras guide and manage the outreach arm of program and word-of-mouth from participants is encouraged to reach the target population. This intervention is unique, culturally sensitive, and necessary in our communities to ensure quality care and accessibility for our underserved residents.

Our role as HCSNs can assist in the care of these individuals by coordinating health related information and relevant information surrounding the households to help clinicians provide the best quality care. HCSNs make clinicians aware of household quality that may interfere with health and follow-up care. Our intervention will also help update and maintain a Community Resource Directory (CRD) as HCSNs discover new resources. The intervention also provides the opportunity to learn about the resources utilized by patients outside of the clinic. Our CRD would align with most of the current efforts found in the literature.

One unique aspect to consider is that our target population is especially underprivileged and may not have the transportation available to access services, even if they are available in the community. We also have a large group of undocumented patients that have unique needs that should be met by our CRD. Hence, our program intervention can help mitigate the lack of access to resources by bringing the information directly to the participants. Implementation of this healthcare system navigation represents a promising program to reduce disparities in primary care delivery by intervening to address barriers to timely care.

OBJECTIVES

The objectives of this study were to determine feasibility and acceptability of an intervention program in patient navigation to increase access to healthcare for the University of Texas Rio Grande Valley Area Health Education Center patients. This study also aimed to provide an effective and worthwhile supplement to health professions education aimed at instilling empathy and the importance of patient-centered care. The primary mission of the healthcare system navigator intervention was to encourage patient compliance, to link patients who have been referred by their primary care provider to the most appropriate community resources based on their needs and abilities, and to provide AHEC Scholars opportunities to engage in community health promotion practices.

METHODS

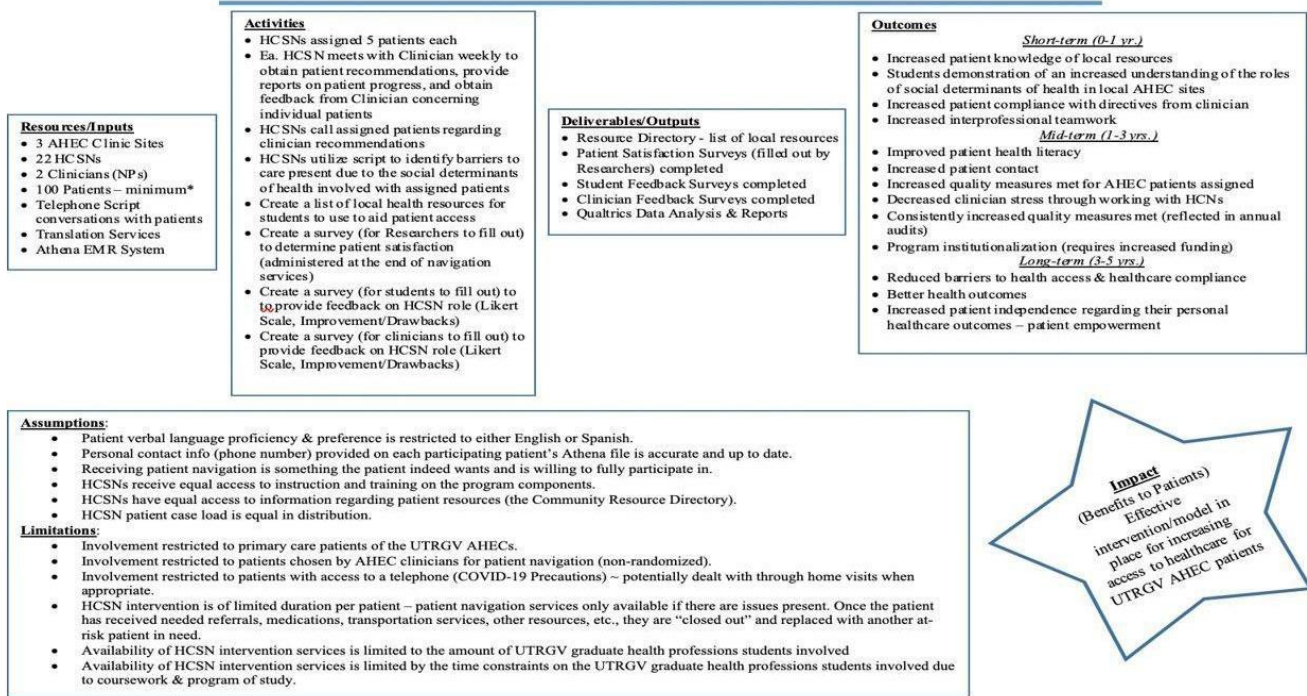
Setting and Study Design

This was a mixed-methods exploratory pilot study with no control group conducted at three AHEC centers in the lower Rio Grande Valley (RGV): La Victoria, Brownsville, and San Carlos, TX between June 2021 and August 2021 as part of the AHEC Scholars Program. These primary care sites provide services including family medicine, acute and chronic illness care, health screenings, physical exams, vaccinations and preventive care.^[3] Participating centers were located in rural areas. All centers had site managers, administrative staff members, at least one nurse practitioner, and used electronic medical records.

The AHEC program is committed to providing high quality care and delivery to the rural and medically underserved communities in the RGV with local estimates suggesting approximately 793 patients treated annually averaging across the three clinics. The healthcare systems navigator program was introduced to the patients by office staff and healthcare providers during office visits and through word of mouth by the patients or local promotoras. Patient

enrolled into the HCSN program are aged 18 and older. The logic model proposed for this program is provided in Supplementary Figure 1.

*The Health Care System Navigator Project at the UT Health RGV
 AHEC Clinics*



Supplementary Figure 1: Logic Model

Thirty-four HCSNs recruited from the AHEC Scholars Program at UTRGV participated in patient navigation. Before the beginning of the program, none of the HCSNs had specific patient navigation experience. There were many assumptions involved in this study (Table 1). The HCSNs resided and studied in the communities they are serving and were knowledgeable about the local community resources that were used in this study. A structured catalog of community resources and services, CRD, was created before the implementation of the HCSN intervention. Before the intervention period, HCSNs actively participated in the preintervention planning activities including forming the logic model, writing the project charter, developing the CRD, and creating the data collection instruments. Although there was no formal assessment of HCSN's skills or competence, the project's evaluation included measures suggested for use in assessment of HCSNs, including satisfaction with healthcare system navigation, satisfaction with the interpersonal relationship with the HCSN, working alliance between the provider and HCSN, cultural competency, and suggestions to improve HCSN experience.

Table 1: Healthcare System Navigator Program List of Assumptions

- Patient verbal language proficiency and preference is restricted to either English or Spanish.
- The personal contact information, i.e., phone number, provided on each participating patient's Athena file is accurate and up to date. However, despite this assumption, we encouraged office staff to confirm and update this information during each office visit.
- Receiving healthcare system navigation is something the patient indeed wants and is willing to fully participate in.
- HCSNs received equal access to instruction and training on the program components.
- HCSNs had equal access to information regarding patient resources, the Community Resource Directory.
- HCSNs lived and worked in the communities they served and were knowledgeable about the community resources utilized in this study.
- Before the intervention period, the student navigators actively participated in the preintervention planning activities for developing a catalog and vetting the community resources for the intervention program.
- HCSN patient case load was distributed equally.

HCSNs were primarily responsible for proactively connecting patients with community-based programs and services, following patients after their appointments with the provider, providing information and encouragement, and conveying concerns to the provider or office staff. HCSNs were not responsible for providing counseling, health education, or healthcare services; however, HCSNs were encouraged to use the CRD to guide patients towards appropriate resources where these services are provided and are accessible to the patients. All clinical questions were referred to the providers.

HCSNs participated in a bimonthly supervision meeting with providers via telephone, where each navigator was encouraged to report progress and any concerns related to the intervention. Students also had continued access to

providers through the electronic medical record messaging portal for additional support. Navigators were required to log all patient contact in the electronic medical record system.

HCSNs provided all communication via telephone, beginning with an initial call after the clinical encounter to assess patient needs, barriers, and limitations to quality care or compliance to provider referral. Follow-up calls were carried out on a weekly basis to reassess patient's barriers to care. HCSNs were able to terminate the telephone communications as soon as the patient's needs were met or after more than three consecutive unsuccessful contacts. The clinic providers, health professions students and patients provided monthly feedback surveys, administered by AHEC Scholars not involved in the HCSN program, to determine feasibility and acceptance of and satisfaction with the intervention.

DATA COLLECTION AND ANALYSIS

Data on sociodemographic and clinical characteristics of patients were obtained from the clinic's electronic health record system and were collected as part of the regular visits with the clinic's providers. The postintervention data were collected within one, two, and three months after the intervention initiation (June 1, 2021) and included data from surveys provided to clinicians, health professions students and patients. Data were analyzed and interpreted by an AHEC Scholar who was not a HCSN. Quantitative data analysis included descriptive statistical analysis of the Likert survey results, whereas qualitative data from the open-ended survey responses were organized using a template-style analysis to identify and categorize the units of interest and themes related to the program intervention's objectives. Qualitative data analysis included identifying potential barriers and facilitators for implementation and feasibility of the healthcare navigation intervention. Categorical variables were summarized by counts or percentages, as appropriate. Informed consents for surveys were obtained from patients, health professions students, and providers, and the project protocol was approved by the University of Texas Rio Grande Valley Institutional Review Board (IRB).

Clinician Survey

AHEC clinic providers who were involved in the referral and continued care of patients receiving HCSN services were given an anonymous online survey via email. The questionnaire was intended to provide information on what perceived impact HCSN services had on the overall clinical care of AHEC patients and on what program-wide adjustments may aid the novel intervention in being more effective and efficient in practice. Cognizant of the limited availability of time in clinician schedules, this questionnaire was as concise and brief as possible. Surveys included 5 statements for the participating clinician to indicate whether they Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5), or Don't know/Refuse to Answer (98). The survey concluded with an optional open-ended section allowing for feedback on the perceived clinical impact of the HCSN intervention and suggestions on how to improve in practice. Online surveys were created and sent out via email through the Qualtrics Program. Clinicians were surveyed once per month for the first 3 months of program implementation to account for program progression and shift in opinion over time.

Health Professions Student Survey

Participants classified as health professions students were those who were previously involved or are currently active in the AHEC program. The purpose of this questionnaire is to investigate the perceived effects (if any) that involvement in the AHEC Scholars HCSN role (a supplemental patient navigation activity) has on the education of graduate-level health professions students at UTRGV. The survey was also used to garner feedback from students on potential areas of program improvement. Surveys included 7 statements that the participant could indicate whether they Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5), or Don't know/Refuse to Answer (98). The survey was concluded with an open-ended question allowing for the participant to provide feedback and suggestions on how to improve the HCSN Program. Online surveys were created and sent out via email through the Qualtrics Program. HCSNs were surveyed once per month for the first 3 months of program implementation to account for possible additional members and a shift in opinion over time.

Patient Survey

Patient surveys consisted of phone calls to patients who had a HCSN assigned at one point of their care across all three AHEC clinics. The survey was conducted in both English and Spanish following a transcript translated by UTRGV Translation and Interpreting Office (TIO). The questionnaire consisted of statements assessing the patient's perspective on how helpful, how resourceful, and how good the interpersonal relationship with their assigned HCSN was. Statements were followed by whether they did Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), Strongly Agree (5), or don't know/Refuse to Answer (98). Phone survey responses were simultaneously recorded on Qualtrics on behalf of the respondents. Surveys were administered by AHEC Scholars who were not involved in the HCSN services provided to the patient being surveyed.

RESULTS

Participants were followed from June – August 2021. Patients identified as Hispanic and were aged 18 and older. Participants were representative of the AHEC patient population.

Program Utilization

HCSNs researched the patient case provided by the provider to find and address patient needs. HCSNs performed a minimum of one call per week per patient. The healthcare system navigators had access to 44 community organizations to which a patient could be linked based upon their needs. A summary of the resources suggested to the patients is provided in Supplementary [Figure 2](#).

Health professions student navigators and clinicians shared that the most popular resources with the patients were community programs that are free and accessible, and the key to addressing patient needs was listening to the patient.

Clinician Survey

The three AHEC clinics are staffed by a total of four providers. The clinician survey was completed by all four providers and indicated that one month after participating in the HCSN intervention, three of the four (75%) participants strongly agreed with the statement (Q1): “The healthcare system navigator program is helpful to me as a clinician” (Figure 1). By the third month after implementing the intervention program, all providers agreed with the statement.

When responding to the statement (Q2), “This service has improved quality of patient care,” half of providers (50%) selected agreed with the statement and one provider (25%) strongly agreed with the statement after the first month, whereas most of the providers (75%) agreed with this statement by the third month. Additionally, most of the providers (three out of four) were undecided if the HCSN program has improved patient compliance (Q3) during the first month of implementation, but then agreed with this statement by the end of the third month. One healthcare provider disagreed that the HCSN program decreased provider workload (Q4) during the first month of program implementation, however, all were neutral to this statement by the third month of engaging in the HCSN program. Lastly, for the statement, “This program has improved my relationship with my patients,” one provider strongly agreed with this statement while the other three were neutral to this statement during the first month, and all were neutral to this statement during the next two months.

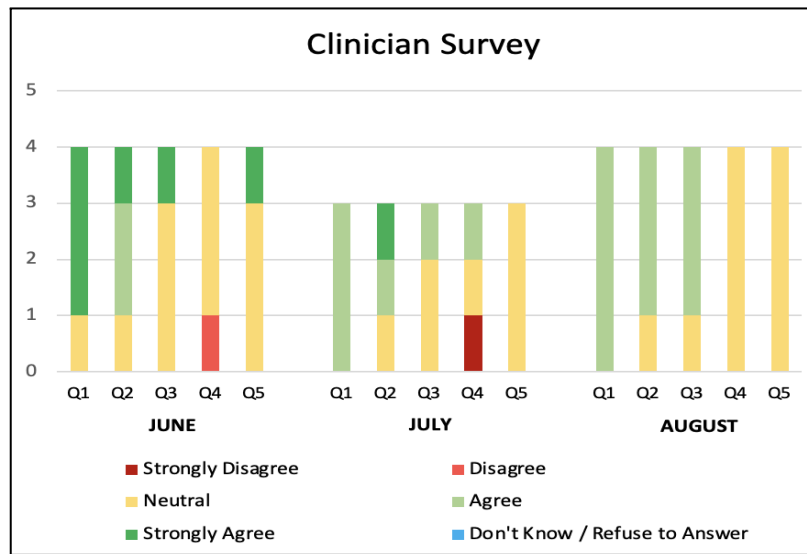


Figure 1: shows the results of the Clinician Survey at 1-, 2- and 3-months Post-Implementation of HCSN Intervention

Qualitative data was collected as an open-ended response for a comment or suggestion with a maximum of 200 words to improve the healthcare system navigation program. Responses from providers indicated need for improved communication between HCSNs and providers. Providers also expressed the need for training on the electronic medical record system and data literacy to maximize time spent assisting patients and prevent “collecting

unnecessary information” (Figure 2). Lastly, providers felt that at times their “workload for particular patients increased somewhat; however, the workload was still manageable.”

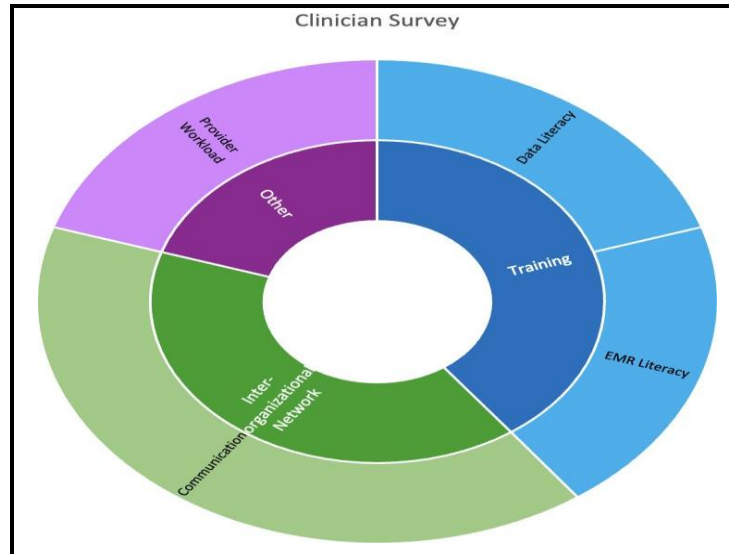


Figure 2: shows a Sunburst Graphic to Demonstrate Categories from Qualitative Data of the Clinician Survey

Supplementary Figure 2: Community Resource Directory

<file:///Users/sabasuleman/Desktop/AHEC/HCN/Community Resource Directory.xlsx>

Health Professions Student Survey

The health professions student survey was completed by ten students who participated as HCSNs during the first month of the program’s implementation, sixteen students participated in the program during the second month, and eleven students participated in the third month of the program. Out of the ten HCSNs who participated in the first month, 60% agreed and 20% strongly agreed with the statement (Q1), “I felt I could either answer the patients’ questions on my own or had access to resources that could answer them (Figure 3). The other 20% did not know/refused to answer the question. By the second month, over half (52.9%) of the students agreed with this statement; however, by the end of the third month all (100%) students either agreed or strongly agreed with this statement. When responding to the statement (Q2), “I could easily convey my purpose to the patients and knew they understood how I could help them,” 60% of HCSNs agreed and 20% strongly agreed during the first month, whereas by the third month, about 55% of the students agreed and 45% strongly agreed with this statement. Half of the students agreed, and 40% students strongly agreed during the first month with the statement (Q3), “I helped a patient reach a resource or bridge a gap they needed to access an aspect of their healthcare;” whereas approximately 45% agreed and 55% strongly agreed with this statement by month two and 50% agreed and strongly agreed by the end of the third month. Additionally, 50% of students agreed and 20% strongly agreed that patients were generally receptive to them (Q4) by the end of the first month with an increase to approximately 55% of students agreeing and

45% strongly agreeing by the end of the third month. For the statement (Q5), “I could contact patients and healthcare providers with the proper security/anonymity,” 60% of students agreed or strongly agreed with this statement in month one, whereas approximately 65% agreed/strongly agreed in month two and approximately 82% agreed/strongly agreed in month three. When asked if being an HCSN helped the student to better understand how to meet patients’ needs (Q6), 20% of HCSNs agreed, 50% strongly agreed and 30% did not know/refused to answer the question at the conclusion of month one. These percentages rose in both the second- and third-months post-intervention to about 90% agreeing/strongly agreeing (30% agreeing and about 60% strongly agreeing) with this statement. Lastly, 60% of respondents strongly agreed that this experience was valuable to their learning about patient-provider relationships (Q7) in months one and two, and about 82% strongly agreed by month three.

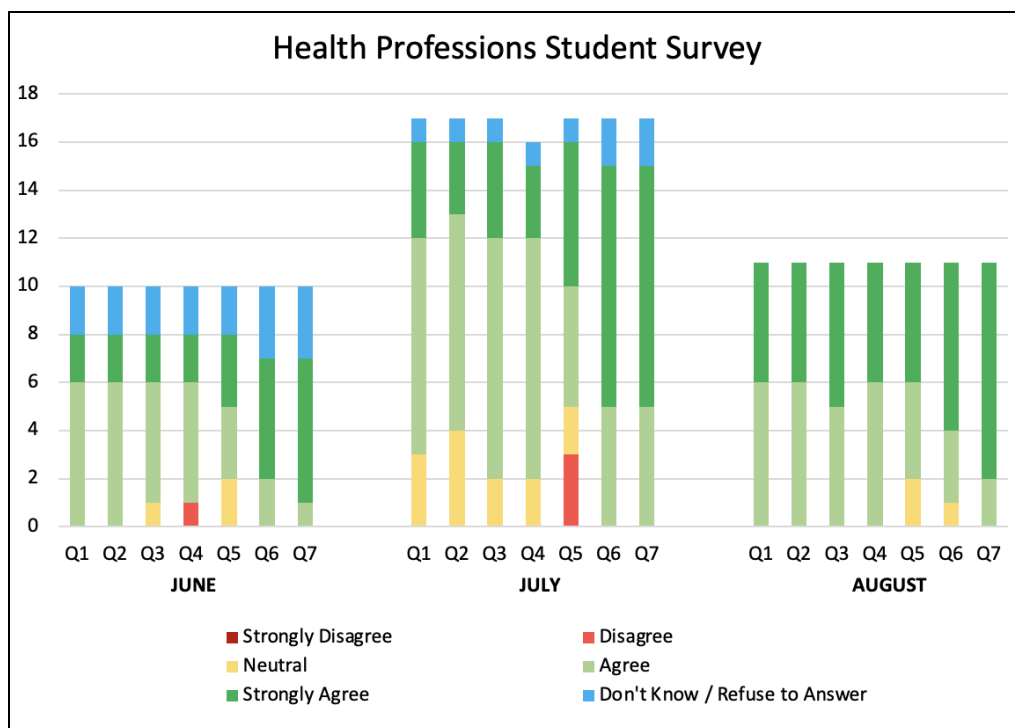


Figure 3: shows the results of the Health Professions Student Survey at 1-, 2-, and 3-month Post-Implementation of HCSN Intervention

Qualitative data for the Health Professions Student Survey was collected as an open-ended response for a comment or suggestion with a maximum of 200 words to improve the healthcare system navigation program. Responses from health professions students indicated need for preparation, possibly in the form of a training session or workshop, to better prepare for the HCSN role and its responsibilities (Figure 4). Due to the program implementation occurring during the COVID-19 pandemic, some students had never been to the clinics. Furthermore, some students requested increased awareness of the HCSN intervention for patients “so that they might be a little more familiar with it rather

than us just calling them out of the blue.” Lastly, students proposed including an “after call log that is accessible by providers, so they are able to see patient updates in real time.”

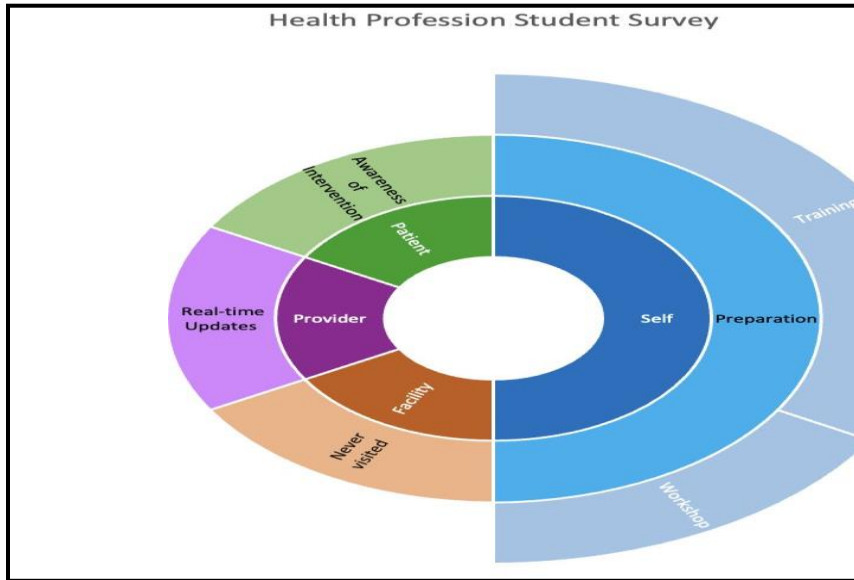


Figure 4: shows a Sunburst Graphic to Demonstrate Categories from Qualitative Data of the Health Professions Student Survey

Patient Survey

The survey provided to patients consisted of two sections: Patient Satisfaction with Logistical Aspects of Navigation Scale (PSN-L) and Satisfaction with the Interpersonal Relationship with the Navigator (PSN-I). Survey was administered at the end of months one (June) and three (August). The PSN-L data indicated that approximately 83% of patients were very satisfied with the help they received from their HCSN in understanding what they were being told to do about their care (Q1) in the first month and all patients (100%) indicated they were very satisfied by the third month (Figure 5). Similarly, we see a greater majority of patients indicating they are very satisfied with their HCSN encouraging them to talk to their doctor about their concerns (Q2), dealing with fears related to their health issues (Q3), getting the health information they need (Q4), making them more involved in decisions about their health care (Q5), and understanding their health issues (Q6) in the first month. All patients (100%) responded they were very satisfied with these statements by the end of the third month. When patients were asked if their HCSN helped them know who to call when they had a question (Q7), 75% of patients stated they were very satisfied in both months one and three. Additionally, approximately 67% of patients responded they were very satisfied and 25% responded as satisfied with their navigation experience to learn about the services in the community for which

they are eligible (Q8) throughout the program. When asked about HCSNs assistance in getting the services in the community for which they are eligible (Q9), approximately 83% of patients were very satisfied/satisfied with their experience. Only approximately 17% patients were not satisfied and did not find this a problem/not applicable during the first month. By the third month, in part due to a decrease in sample size, half of patients responded as very satisfied whereas the other half noted getting community services to either not be a problem/not applicable or did not know/refused to answer. For the last statement (Q10), “overcoming barriers related to a physical disability,” majority of patients (approximately 60% in month 1 and 75% in month 3) stated this was not a problem/not applicable.

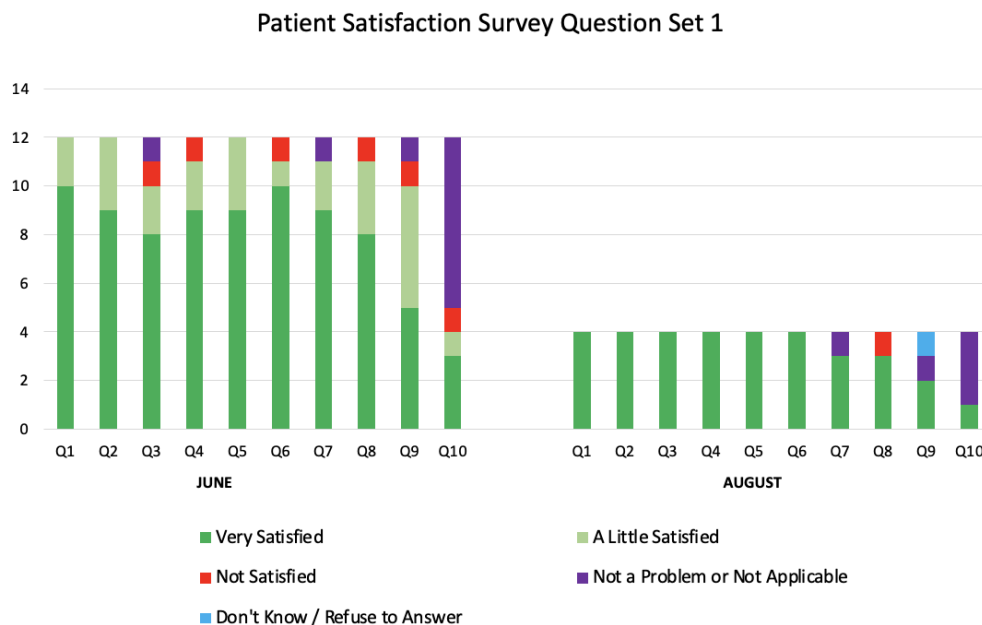


Figure 5: Patient Satisfaction Survey Data for PSN-L at 1- and 3-months Post-Implementation of HCSN Intervention

The second section of the patient survey focused on patient satisfaction with the interpersonal relationship with the HCSN. Survey data was collected following one- and three-months after implementation of the HSCN program. Nine questions were asked and responses were collected as summarized in **Figure 6** regarding patients’ feelings towards their navigator, including if they felt their navigator was easy to talk to (Q1), listened to their problems (Q2), was dependable (Q3), was easy to reach (Q4), cared about their personality (Q5), was courteous and respectful towards them (Q6), gave them enough time (Q7), figured out the important issues in their healthcare (Q8), and made them feel comfortable (Q9). More than 90% of patients agreed/strongly agreed with each of the statements (Q1-Q9) after the first month of the program.

At the end of month three, all patients (100%) agreed/strongly agreed with each statement, except for Q8, where one patient felt undecided/neutral to this statement.

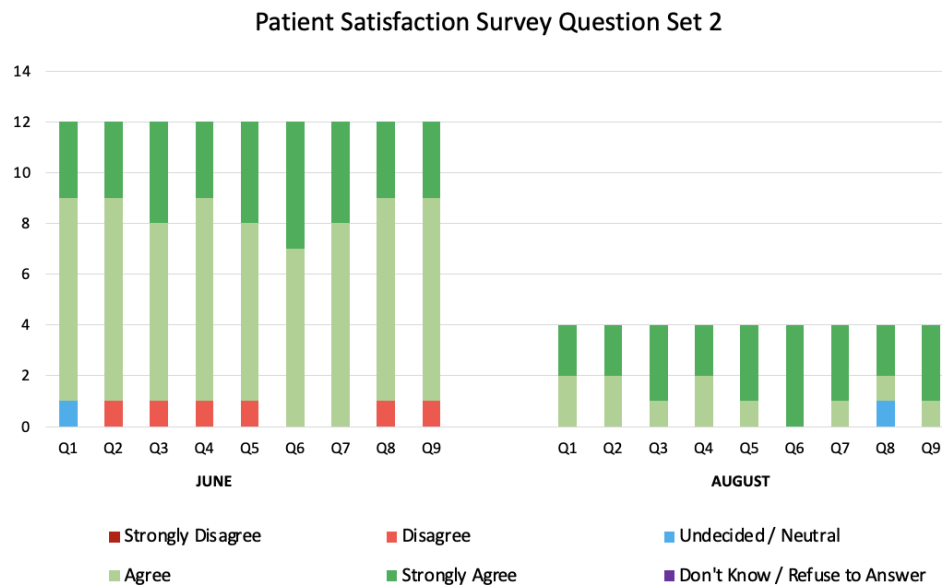


Figure 6: Patient Satisfaction Survey data for PSN-I at 1- and 3-months post-implementation of HCSN intervention

DISCUSSION

A centralized effort amongst health professions student, clinicians, and administrative staff of the AHEC Scholars program led to the successful design and implementation of a multidisciplinary healthcare systems navigation intervention to address health disparities experienced by residents of the colonias in the lower RGV. Several studies have evaluated patient navigator interventions, and the results of our study corroborate previous findings and demonstrate healthcare navigation can enrich patient-centered care. To the best of our knowledge, this study is the first to have health professions students conduct and research a patient navigation program for low-income Hispanic patients in this region. Our data suggest that the HCSN intervention is a promising and acceptable strategy to link patient, provider, and community resources for healthcare promotion in vulnerable populations and provide meaningful experiences for students to exercise community health promotion. The results of this study should be interpreted with caution since we did not have a control group because of its feasibility nature. Future studies with the use of a comparison group should be conducted to establish the effectiveness of the HCSN intervention.

Descriptive statical analysis of surveys administered to the three stakeholder groups – clinicians, health professions students, and patients – indicated the HCSN initiative was found to be acceptable and feasible. Clinicians agree the HCSN program assists them as providers. They also maintained a positive view of the programs’ effects to improve quality of patient care and patient compliance. Only during the first two months of the intervention’s initiation did a single clinician feel as though the project did not decrease provider workload. By the end of the third month, all providers reported neutral feelings towards effects on their workload. We believe this effect may be seen due to increasing comfort of HCSNs with their roles and responsibilities as well as increased collaboration amongst all stakeholders of the program. Students and providers are able participate in the program more effectively and efficiently with increasing experience throughout the three months. Suggestions by clinicians to further improve the program intervention include training HCSNs on data literacy and effective use of the electronic medical records. When asking the clinicians how they believe HCSNs would benefit from such training, they informed us that training would help define HCSN roles more clearly so that students do not “waste their time collecting unnecessary information and spend more time helping patient[s] find resources they need to live healthier lives.” We plan to incorporate this suggestion into our ongoing program intervention to provide students with the preparation they need to perform as a successful HCSN and maximize their time and efforts. The clinicians also suggested increasing clear, effective communication between the HCSNs and providers. As this is an ongoing project by graduate health professions students, naturally there will be new students joining the AHEC Scholars program yearly as others are departing post-graduation. Additionally, time commitments and constraints are shifting throughout the year for students, affecting their ability to participate each month as HCSNs. These factors may have led to discontinuation of communication among some HCSNs and providers. For the future, we will work on improving such communication.

Furthermore, data analysis revealed uniformly positive feedback from health professions students and patients. HCSNs felt comfortable answering patients’ questions or directing them to appropriate resources to address their concerns, relaying their role to patients in helping access healthcare, and bridging gaps to quality care. As many of the health disparities are associated with language and culture differences as barriers, patient navigators can foster trust within the populations they serve. At times, fostering trust and engaging in deeper communication can hinder HCSN anonymity and security with both providers and patients. HCSNs were meeting bimonthly with the providers as a group via telephone conferencing, which affected their anonymity. Additionally, there were additions and losses of student navigators during these three months which can affect students’ opinions towards the program. Majority of students felt their role as HCSNs helped them better understand how to meet patients’ needs and that this experience was valuable to their education on patient-provider relationships. However, some students may have newly joined and are not yet experienced with the responsibilities, affecting their performance and attitudes towards these survey questions. The suggestions from the navigators themselves are very valuable for program intervention management. Navigators function as brokers, having the capability to confront health system and environmental barriers that can disproportionately burden Hispanic populations.^[4] Thus, our healthcare navigators play a critical role in coordinating access to a complex health delivery system by tailoring their assistance to help vulnerable

groups, facilitate communication and collaboration with providers, and provide support necessary to increase access to care.^[4] HCSNs suggested an initial training or workshop on effective patient interactions, understanding the resources being provided to patients in the community, and duties related to the HCSN role would greatly benefit the program. A student also recommended having introductions regarding the HCSN program directed towards patients prior to patient navigation. We have discussed having clinicians send a letter to eligible patients conveying their invitation to participate in the HCSN program and that a student would be reaching out to them via telephone. We hope to implement this change soon and would advise future patient navigation programs to consider ways to introduce navigation programs to participants prior to intervening.

Just as clinicians advised effective communication, the students suggested creating a call log after contacting patients that is accessible by clinicians so that updates on patient navigation are seen in real-time, such as through an Excel sheet. In efforts to protect patient information and follow IRB protocol, we cannot share de-identified data via an online cloud document. Our HCSN program allots for bimonthly meeting with supervisors as well as continued communication opportunities via the messaging function on the electronic medical record. We may consider more frequent group meetings as appropriate. Additionally, due to program implementation occurring during the COVID-19 pandemic, some students relayed they had not been to the clinics, and therefore, would benefit from familiarity of the location, its structure, and services provided within; however, at the moment we were unable to allow students to visit the clinics due to the pandemic's restrictions. Moreover, another rationale for the HCSN program was due to the pandemic preventing student's physical participation at the clinics, this program allowed students the opportunity to continue working with patients and provide meaningful assistance in their community.

From the patient perspective, the participants demonstrated high satisfaction with the logistical aspects of the HCSN program and interpersonal relationships with the HCSNs. We were unable to collect survey results from patients in July 2021 due to lack of response from patients despite multiple attempts to make contact. Multiple rationales may account for this, including time constraints for phone calls during the work week. Many of the patients are employed in manual-labor occupations which involve working long hours that go beyond the typical 9AM-5PM timeframe. This is one social aspect inherent to our patient population that contributes to barriers to clinical care overall. Additionally, HCSNs who did not provide navigation services to the patient administered the surveys, however, as they were still HCSNs. Patients may have been uncomfortable relaying truthful comments and suggestions. In a previous patient navigation study, their findings emphasized the importance of trust in the patient and patient navigator relationship. Navigators are able to provide useful information to patients to assist them in accessing healthcare and navigating the healthcare system, yet they also serve as supportive allies.^[4] Most of our patients express gratitude for the care they are receiving and appreciate the health professions students' support with obtaining quality and timely resources and services and encouragement to pursue their options for care. HCSNs have this wonderful opportunity to practice patient-centered care by establishing trust with patients, which is the link that will help to extend the trust from the patient and HCSN relationship to the larger healthcare system. In addition to interpersonal relationship building, patient navigation has been shown to increase patient satisfaction with services

received amongst underserved populations.^[4] We may not receive any negative comments or suggestions from patients when HCSNs are collecting qualitative data in hopes of preventing HCSN discouragement, which can bias our results; therefore, we did not ask the same open-ended questions to our AHEC clinic patients.

In conclusion, this report provides the first student-led research study to determine feasibility and acceptability of a healthcare system navigation intervention that aims to address barriers to healthcare. These data suggest that if we target HCSN services to those underserved populations in the lower RGV, we can work collaboratively with local providers and community establishments to improve the quality-of-care delivery and patient compliance that is necessary to ensure equity in healthcare.

Project Implications and Future Direction

This exploratory pilot study is the first student-led healthcare navigator research project conducted in the underserved communities of the lower RGV. Our study contributes new knowledge that can inform the initiation and maintenance of a scalable, primary care healthcare system navigation program that links patients with community health services and resources. Our study highlighted that personalized healthcare navigation can improve patient compliance and quality of interprofessional care. It also provides directions for future research on healthcare navigation in low-income communities and along the US-Mexico border.

This scalable model can empower students across the Rio Grande Valley and across the country to become future champions for access to care. Health focused student organizations along the U.S.-Mexico border can replicate our model by contacting their local primary care clinics and federally funded health organizations such as the AHEC program.^[5]

LIMITATIONS

This study had several limitations. HCSNs completed training before beginning of the project.

The training consisted of three 1.5-hour online-based CITI training sessions on social-behavioral-educational basics and social behavioral responsible conduct of research; however, patient-centeredness, individualized care plans, motivational interviewing techniques, communication, and tracking trainings were not conducted. Although there was no formal assessment of patient navigators' skills or competence, the project's qualitative evaluation included measures suggested for use in the assessment of patient navigators, such as satisfaction with navigation, patient self-efficacy, perceived barriers to care, working alliance between primary care practices and patient navigators, and cultural competency.

We considered various scales for this project, but all utilized more than 20 items. Patients were recruited during routine visits, and longer tools would burden both patients and practices.

Additionally, existing scales partly cover the same topics but lack comprehensive coverage of self-management, necessitating multiple questionnaires and increasing patient burden.^[6]

Another limitation offered by the design of this study was a weak component of qualitative methodology, as the primary data collection instruments consisted of only one open-ended item for comments. However, despite this limitation, we attempted to maximize the relevance of findings by applying coding and categorization techniques to embody the respondents' statements.

An additional limitation of this study is involvement was restricted to primary care patients of the UTRGV AHEC clinics. Involvement restricted to patients chosen by AHEC clinicians for patient navigation (non-randomized). Involvement in this study was also restricted to patients with access to a telephone (COVID-19 Precautions). We recommend future studies to consider home visits when appropriate.

HCSN intervention was of limited duration per patient, and patient navigation services were only available if there were issues present in acquiring healthcare resources or services. Once the patient has received needed referrals, medications, transportation services, other resources, etc., they are "closed out" and replaced with another at-risk patient in need.

Additionally, availability of HCSN intervention services was limited to the number of UTRGV graduate health professions students involved. The program intervention services were also limited by the time constraints on the UTRGV graduate health professions students involved due to coursework and program of study. We recommend that future studies consider a large sample size and further build on the evidence. We also acknowledge that these data were collected in 2021, during the COVID-19 pandemic year; however, we consider the findings from the study to be unique and still relevant, on the basis of the existing literature and development in the area of healthcare system navigation to address barriers to quality care.

CONCLUSION

RGV colonia populations, serviced by the AHEC Clinics, unfortunately face abundant barriers to adequate health care due to a multitude of social determinants of health at play, and therefore have been vastly underserved in comparison to the grand US populace as a result. Pilot implementation of health care system navigation services were provided by multidisciplinary AHEC Scholars to these colonia populations in an effort to reduce health disparities. Our mixed-methods exploratory study was conducted to evaluate program effectiveness and feasibility. Surveys were sent in online format to participating clinicians and health professions students acting as HCSNs. Patients who received HCSN services were administered surveys via telephone in their language of choice and their responses recorded. All surveys were given on a monthly basis. Results were uniformly positive and provided evidence of the program's effectiveness and feasibility. In addition, feedback listed in these surveys provided points for program improvement. Although our study was limited in scope to primary care, given in a sub-set patient population within rural South Texas in a 3-month timeframe, the promising and overwhelmingly positive feedback from those involved indicate continuation and/or initiation of HCSN interventions such as this in similar demographics is feasible and efficacious. Further studies regarding if such interventions quantitatively improve quality care measures are warranted to bolster health care system navigation service utilization in broader contexts.

ACKNOWLEDGMENTS

The authors would like to acknowledge all the patients, health professions students, and clinicians for their time and valuable participation in this study. We would also like to thank multiple staff at the AHEC Scholars Program Office for their incredible support in helping us collect the required data for this study. We gratefully acknowledge Drs. John Ronnau and Shawn Saladin and Ms. Aracely Ramirez, LVN for their careful review, advice, and feedback on our study.

NOTES

Funding: This project is supported in part by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number 5U77HP311220400 AHEC Scholars Program for \$3,750,000. This information or content and conclusions are those of the authors and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA or HHS.

Conflicts of interests: the authors declare there are no conflicts of interest regarding this work.

Ethical Standards: The study protocol was approved by University of Texas Rio Grande Valley's Institutional Review Board (IRB-20-0364).

AUTHOR CONTRIBUTIONS

Sabrina Orta and Saba Suleman were involved in program development, conception and design, manuscript writing and final approval. Sabrina Orta was involved in data collection. Saba Suleman was involved in literature review, data analysis, and data interpretation. Samuel Alvarez was involved in the literature review and final approval. Miguel Garza and Ruayda Bouls were involved in writing and implementing the survey methods and final approval.

REFERENCES

1. Vigness D, Odintz M. Rio Grande Valley. Handbook of Texas Online. 2015, September 29.
2. Colonias legislative reports. (n.d.). Texas Secretary of State.
3. Berghom, J. UTRGV School of Medicine hosts first grand opening for Area Health Education Centers. UTRGV The Newsroom. 2018, September 24.
4. Natale-Pereira A, Enard KR, Nevarez L, Jones LA. The role of patient navigators in eliminating health disparities. Cancer. 2011;117(S15):3541–3550.
5. Hallur S, Sandhu S, Herold E, Trejo A, Rasmussen D, Riggs N, et al. Embedding Student Volunteer Affordable Care Act navigators in a primary care clinic. Annals of Family Medicine. 2022;20(3):282.
6. Loskutova N, Tsai AG, Fisher EB, LaCruz DM, Cherrington A, Harrington TM, et al. Patient Navigators connecting patients to community resources to improve diabetes outcomes. Journal of the American Board of Family Medicine. 2016;29(1):78–89.