



Bridging Orthopedic Gaps: A Student-Run Clinic Model for Immigrant and Uninsured Populations in Dallas

Muaz Wahid¹; Ammaar Kazi¹; Zuhair Zaidi¹; Sameer Sajjad²; Rafay Wahid³; Drew Sanders, MD, MPH⁴

¹University of Texas Southwestern Medical School, Dallas, Texas, USA

²Edward Via College of Osteopathic Medicine, Monroe, Louisiana, USA

³Texas College of Osteopathic Medicine, Fort Worth, Texas, USA

⁴Department of Orthopedic Surgery, University of Texas Southwestern Medical Center, Dallas, Texas, USA

Corresponding Author: Muaz Wahid; email: mauz.wahid@utsouthwestern.edu

Published: September 20, 2026

Abstract

Background: Uninsured patients frequently face substantial barriers to obtaining orthopedic care, resulting in delayed treatment and worsened musculoskeletal outcomes. These barriers often include financial limitations, lack of insurance coverage, transportation difficulties, and language or cultural differences. To address these challenges, the Islamic Circle of North America (ICNA) Relief Free Clinic in Dallas established a student-run orthopedic care program within its broader free-care model. Patients are evaluated on a walk-in basis, with care provided by medical students under the supervision of an attending physician. The objective of this study was to describe and analyze the barriers encountered by uninsured patients accessing orthopedic care and to assess the effectiveness of this care model in overcoming them.

Method: This was a single-site, cross-sectional descriptive study of patients seen through the orthopedic clinical pathway of the ICNA Relief Free Clinic in Dallas, Texas. Clinical encounter data were reviewed for the program period beginning November 2024, and a standardized, secure web-based survey (Research Electronic Data Capture) administered during clinic sessions from March 1 to April 9, 2025 captured demographics, insurance status, presenting complaints, treatments provided, and self-reported barriers to care. Analyses were descriptive (frequencies and proportions; no inferential testing) and were performed in Microsoft Excel.

Results: A total of 62 patients were included. Financial limitations were reported by 27.4% of patients, while 38.7% experienced language or cultural barriers, and 32.3% reported transportation as a challenge. Patient satisfaction was high, with 96.8% of patients rating their care 7 or higher on a 0-10 scale.

Conclusions: A student-run orthopedic pathway within a free clinic delivered accessible, highly rated musculoskeletal care to a predominantly uninsured, linguistically diverse population, supporting the scalability of this model in similarly underserved communities. Future work will incorporate validated functional outcome measures, structured follow-up with navigator-led referral tracking, and multilingual after-visit summaries, and will evaluate the model across additional sites.

Introduction

Dallas County is home to a large uninsured and underinsured population, many of whom face persistent barriers to timely, high-quality medical care.¹ These challenges extend beyond financial limitations and often include transportation difficulties, limited clinic capacity, long wait times for appointments, and inadequate language services.¹⁻³ Such barriers are especially critical in orthopedic care, where timely evaluation is key to preventing long-term disability. A local study of Iraqi refugee families in urban Dallas found that despite 67 percent being on Medicaid, many families still faced poor access to specialists due to referral delays, long wait times, and limited interpreter support.⁴

Similar patterns have been observed in pediatric populations, where travel times exceeding 45 minutes and scheduling delays were associated with significantly higher odds of missed appointments.⁵ For non-English-speaking patients, limited interpreter support further delayed imaging and referrals, contributing to worse musculoskeletal outcomes.⁶ Given these access challenges and the increasing burden of musculoskeletal conditions, there is a pressing need to explore innovative, community-based care models that bridge gaps in specialty services.

Student-run free clinics (SRFCs) offer one such vehicle but have traditionally emphasized primary care over specialties like orthopedics. Musculoskeletal conditions are the second leading cause of global disability and a major source of outpatient visits and chronic pain in the United States.⁷ Yet underserved populations often lack orthopedic access due to cost, insurance barriers, and referral delays. Some clinics have addressed this gap, including Stanford's Arbor Musculoskeletal Clinic (61 patients over 2.5 years) and Vanderbilt's Shade Tree Orthopedic Clinic (75.5% with chronic complaints averaging nearly two years), though such models remain rare.⁸ These clinics, however, remain exceptions. While SRFCs effectively manage hypertension, diabetes, and mental health, they typically lack resources necessary for orthopedic care, including specialized exams, imaging, and procedures.^{9,10}

Recognizing this national gap in specialty access, our team sought to develop a sustainable model extending the SRFC framework beyond primary care. Establishing the orthopedic SRFC within the Islamic Circle of North America (ICNA) Relief Free Clinic directly addresses Dallas's unmet orthopedic needs. Dallas County, home to over 2.6 million residents with nearly a quarter uninsured, has the highest uninsured rate among major Texas urban counties.¹¹ The city's population is highly diverse, with 42% Hispanic or Latino, 24% Black or African American, and nearly 25% foreign-born, and 42% of households speak a non-English language.^{12,13} These factors compound structural healthcare disparities. Parkland Health, the county's primary public hospital system, faces high patient volumes, with specialty appointments often taking months; even Medicaid patients experience delays in imaging and surgical consultations.¹⁴ In response, the ICNA Relief orthopedic program provides no-cost musculoskeletal care to uninsured patients and serves a diverse, predominantly immigrant population speaking Urdu, Arabic, Spanish, Bengali, Amharic, Tigrigna, and Portuguese. Under volunteer physician supervision, medical students perform examinations, imaging, and procedures, expanding timely access to orthopedic care while gaining invaluable hands-on experience. This dual mission of advancing health equity and training future clinicians positions the Dallas SRFC as a scalable framework for reducing specialty care disparities in resource-limited urban settings. This study had two objectives: to characterize the demographic profile, presenting complaints, and self-reported access barriers of patients using a student-run orthopedic clinical pathway, and to describe patient-reported access and experience outcomes under this care model. No between-group comparison or hypothesis test was planned.

Methods

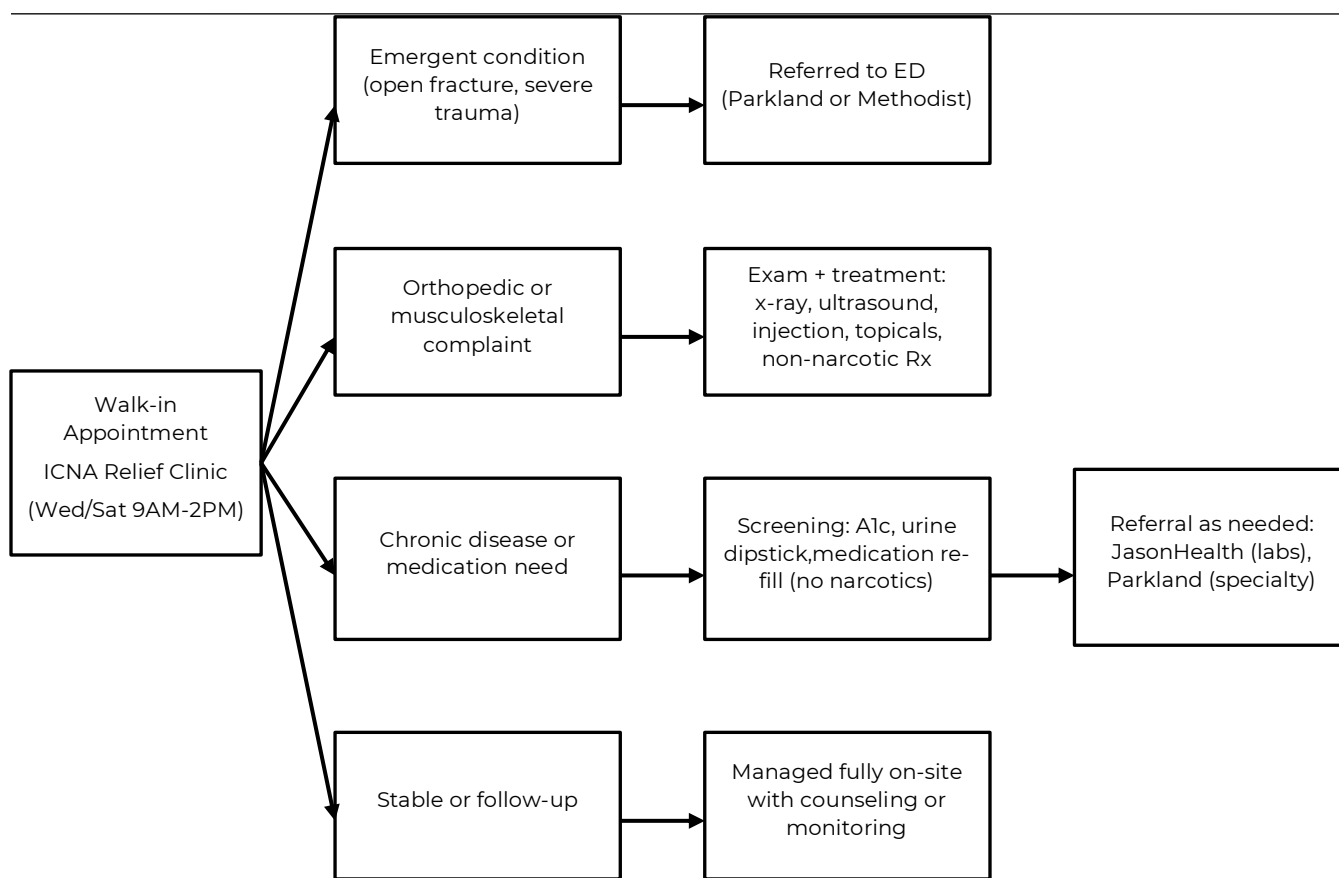
Study Design

This study was a review of patient survey responses and clinical encounter data collected electronically from patients seen at the ICNA Relief Free Clinic between November 2024 and March 2025. Institutional oversight for the project was provided by University of Texas Southwestern Medical Center faculty and the ICNA Relief Free Clinic leadership. The study was reviewed by the University of Texas Southwestern Institutional Review Board, which determined that the project constituted non-regulated research.

Clinic Model

In our clinical model, orthopedic care is delivered under the supervision of one attending

Figure 1. Triage process and orthopedic care structure at the Islamic Circle of North America (ICNA) Relief



A schematic representation of patient flow at the student-run orthopedic clinic, highlighting initial triage, on-site imaging and interventions, and referral pathways for complex cases.

ICNA: Islamic Circle of North America; ED: emergency department; A1c: hemoglobin A1c; Rx: prescription

physician, with two to four medical students providing care in individual exam rooms. This model expands patient capacity while maintaining oversight, and simultaneously functions as a training environment for medical students.

As shown in Figure 1, patients are triaged based on clinical presentation. Emergent cases, such as open fractures or severe trauma, are referred immediately to local emergency departments. Orthopedic and soft tissue complaints are evaluated on-site through physical exams and imaging. The clinic is equipped with digital radiography, portable ultrasound, and supplies for intra-articular glucocorticoid injections. Topical treatments are dispensed when appropriate. In addition to orthopedic services, the clinic offers chronic disease screening, facilitates medication access through assistance programs, and coordinates referrals for laboratory and specialty care via local partners.

Study Measures

Patient demographic data (age, gender, employment, insurance status, and primary language), presenting complaints, and treatments provided were collected using a standardized web-based survey instrument (REDCap [Research Electronic Data Capture], version 2024; Vanderbilt University, Nashville, TN, USA). Patients also reported perceived barriers to care, including financial limitations, transportation difficulties, cultural or language concerns, and access to diagnostic imaging and specialty referral.

Barrier and experience items used fixed response options, dichotomous or ordered categorical; these data are quantitative and required no qualitative coding, and the response categories shown in Figures 4 and 5 quote the instrument verbatim, except satisfaction, which was rated on a 0-to-10 numerical scale and is presented in binned form. The presenting-complaint and treatment fields combined checklist options with free-text entry; free-text entries were categorized post hoc by the study team into the complaint categories reported in the Results and the diagnosis categories shown in Figure 3. 'Self-reported' indicates items answered by the patient; clinical variables (diagnoses, imaging, and procedures) were recorded by the treating team.

Data collection was standardized in that every patient received the identical instrument, with the same items in the same order and the same response options, regardless of presenting complaint or clinic session.

Analysis

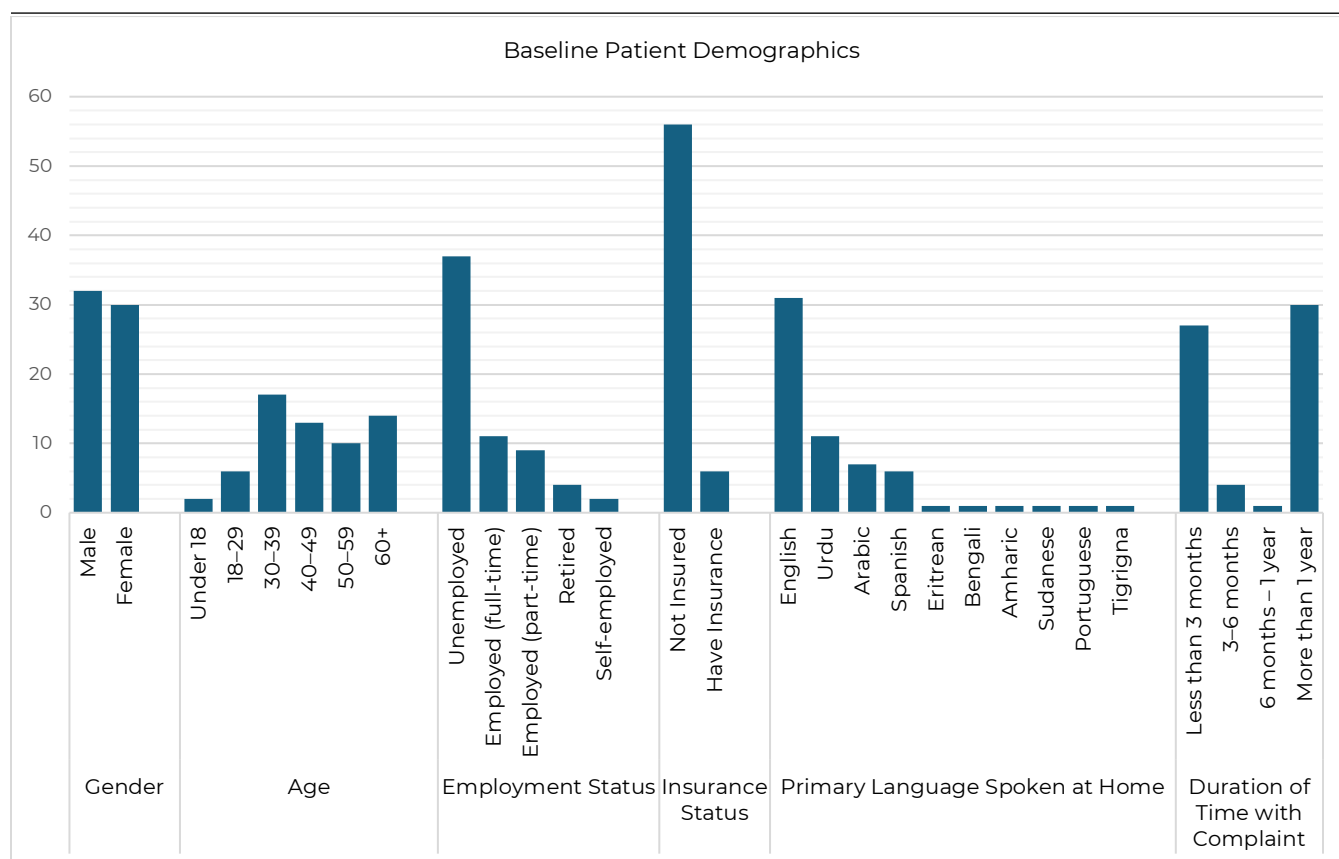
Analyses were descriptive only; no hypothesis was tested and no inferential statistics were performed. Categorical variables are summarized as frequencies and proportions (n, %). Age and symptom duration were collected as ordered categories on the instrument (age in decade bands; duration in intervals). The denominator for each item is the number of patients responding to that item; item-level nonresponse is reported in the corresponding figure. No values were imputed and no enrolled patient was excluded from analysis. Descriptive statistics and Figures 2, 4, and 5 were generated in Microsoft Excel for Microsoft 365 (Microsoft Corporation, Redmond, WA, USA).

Results

A total of 62 patients were treated through the orthopedic care program at the ICNA Relief Free Clinic. Gender distribution was nearly even, with 32 male patients (51.6%) and 30 female patients (48.4%). The most common age group was 30–39 years (n=17, 27.4%), followed by patients aged 60 years or older (n=14, 22.6%) and those aged 40–49 years (n=13, 21.0%). Few patients were under 18 years of age (n=2, 3.2%). Employment status reflected substantial economic vulnerability. The majority of patients were unemployed (n=37, 59.7%), followed by full-time employed (n=10, 16.1%), part-time employed (n=8, 12.9%), retired (n=5, 8.1%), and self-employed individuals (n=2, 3.2%). Insurance coverage was notably limited. Most patients (n=56, 90.3%) reported being uninsured, with only six patients (9.7%) having any form of insurance. Language data reflected the clinic's multicultural reach. The most common primary languages spoken at home included English (n=32, 51.6%), Urdu (n=11, 17.7%), and Arabic (n=7, 11.3%). Additional languages reported by patients included Spanish, Bengali, Tigrinya, Amharic, Portuguese, Sudanese, and Tigrigna. Finally, symptom duration revealed a pattern of delayed presentation: 27 patients (43.5%) reported musculoskeletal complaints lasting less than three months, while 30 patients (48.4%) reported symptoms persisting for more than one year. Full baseline characteristics are summarized in Figure 2.

Back pain was the most frequently reported musculoskeletal complaint, accounting for 16.1% of all visits. Common diagnoses within this category included degenerative disc disease, spinal stenosis, sciatica, lumbar strain, and arthritis. Other major presenting symptoms included neck pain (n=5, 8.1%), shoulder pain (n=3, 4.8%), foot or ankle pain (n=4, 6.5%), knee pain (n=3, 4.8%), nerve-related pain (n=3, 4.8%), and hand or wrist pain (n=2, 3.2%). Conditions such as tendinopathy, impingement, carpal tunnel syndrome, gout, and radiculopathy were also diagnosed, reflecting the diversity of orthopedic issues encountered. Diagnoses related to arthritis and inflammatory joint disease (e.g., rheumatoid arthritis, psoriatic arthritis, and gout) were identified in 5 patients (8.1%). Full diagnostic categories and associated presenting complaints are detailed in Figure 3.

Figure 4 demonstrates that despite being seen at a no-cost clinic, many patients reported facing substantial systemic and structural barriers to obtaining timely musculoskeletal care. Nearly

Figure 2. Baseline demographic characteristics of patients (N=62)

Includes distribution by gender, age, employment status, insurance status, primary language spoken at home (as reported by respondents), and duration of the presenting condition. Figure generated in Microsoft Excel (Microsoft Corporation, Redmond, WA, USA).

one-third (n=17, 27.4%) stated that financial concerns had previously prevented them from receiving urgent medical attention. Notably, the majority of respondents (n=51, 82.3%) were unaware of any financial assistance programs that might have facilitated earlier access to care. In terms of communication and decision-making, over one-third of patients (n=24, 38.7%) indicated that cultural or language-related barriers had at least slightly impacted their ability to make healthcare decisions. Transportation limitations also posed a significant challenge. While 42 patients (67.7%) said they rarely missed visits due to transportation issues, a substantial number (n=18, 29.0%) reported missing appointments occasionally (3–5 times), and a small subset (n=2, 3.2%) indicated frequent disruptions (more than 5 times) due to transportation difficulties.

Figure 5 summarizes patient feedback from the ICNA Relief Medical Clinic across four domains: appointment availability, perceived improvement in condition, understanding of treatment options, and satisfaction with care. The majority of patients (66.1%) reported being seen within less than one week of scheduling, with 29.0% seen within 1–2 weeks.

Only 1.6% waited 2–4 weeks, and 3.2% waited more than a month. Regarding clinical outcomes, 27.4% of patients felt their condition had significantly improved and an additional 27.4% noted slight improvement. However, 38.7% reported no change, and 6.5% stated that their condition had worsened. Most patients (85.5%) felt adequately informed about their treatment options, while 14.5% did not. Satisfaction with care was high: 75.8% of patients (n=47) rated their care 9–10 on a 0-to-10 scale and 21.0% (n=13) rated it 7–8; only two patients (3.2%) rated it 6 or below. These results underscore the

Figure 3. Musculoskeletal diagnoses by chief-complaint category

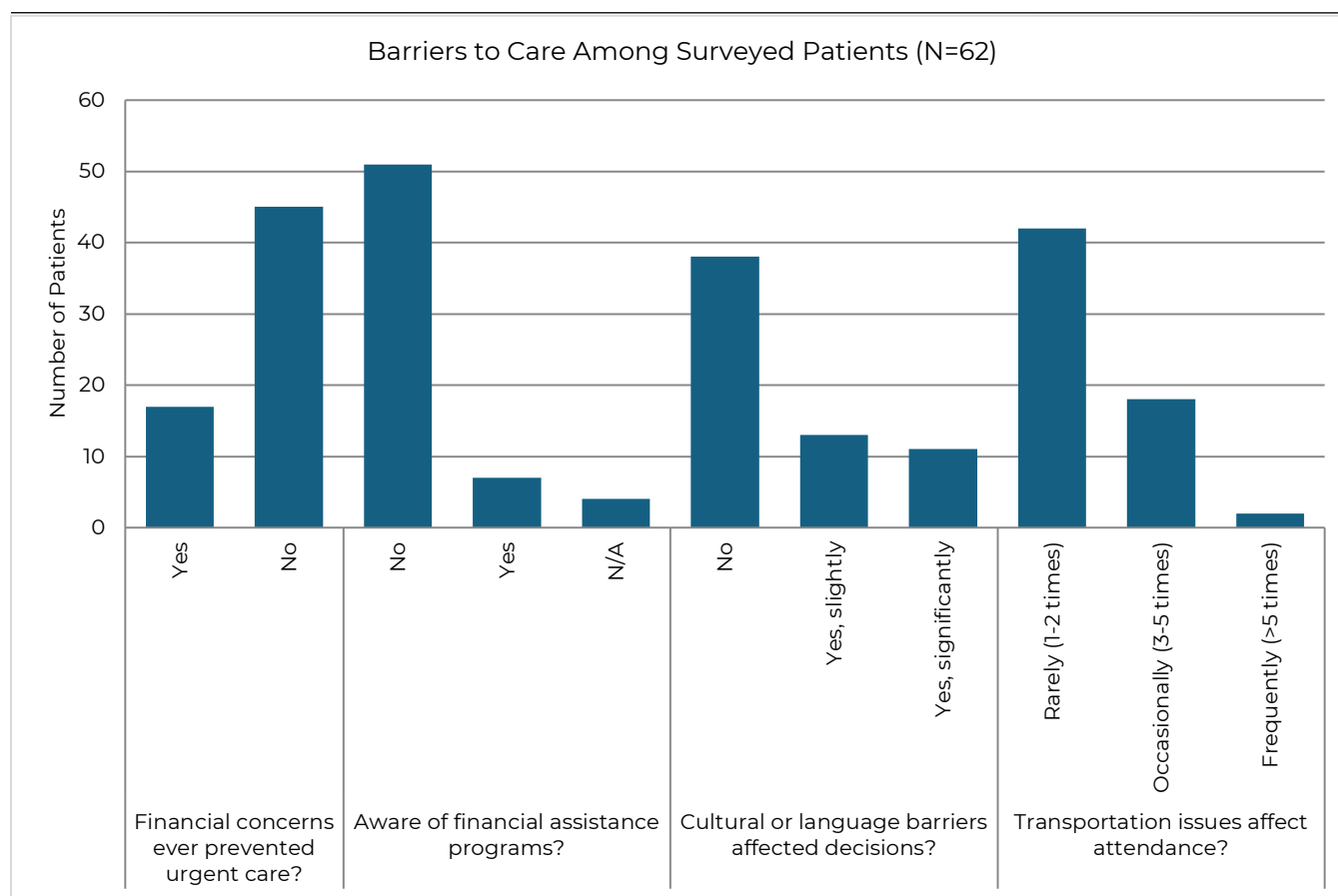


Each color represents one broad category of chief complaint (for example, back pain, neck pain, or arthritis and joint disease); the outer-ring segments of the same color show the specific diagnoses assigned within that category, with the number of patients after each diagnosis label.

clinic's effectiveness in providing timely, patient-centered care, though perceived symptom relief remains an area for improvement.

Discussion

SRFCs have gained traction in the United States, offering low- or no-cost services to the underinsured while providing early clinical experience for future physicians. More than 75% of United States medical schools support at least one SRFC, collectively seeing hundreds of thousands of patients annually.^{15,16} While most SRFCs focus primarily on primary care, many have the potential to fill specialty care gaps, including dermatology, psychiatry, obstetrics, and orthopedics.^{15,17} SRFCs' dual mission produces clear

Figure 4. Barriers to care among surveyed patients (N=62)

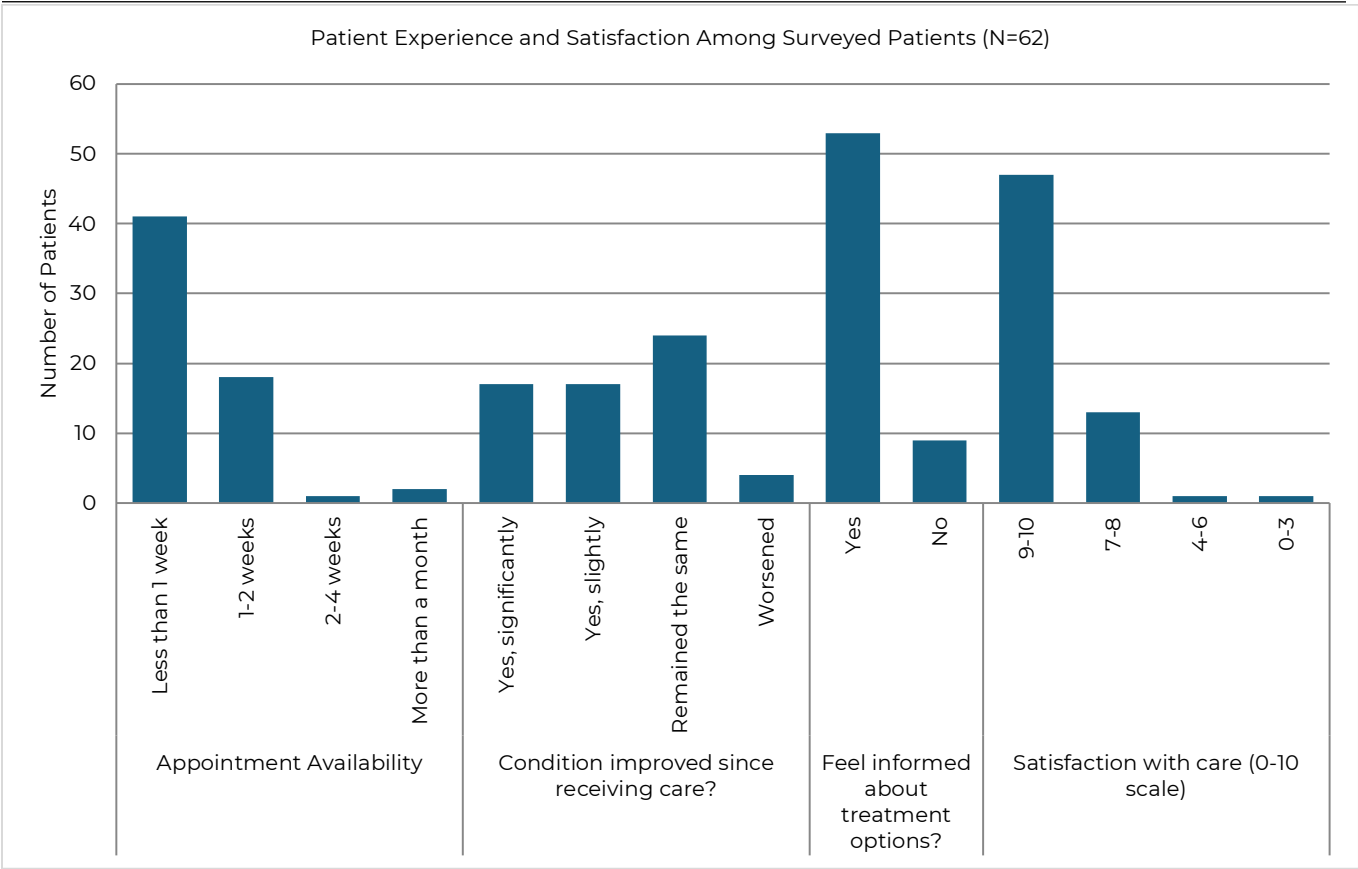
Patient-reported structural and systemic barriers to timely musculoskeletal care, including financial hardship, transportation difficulty, and language or cultural barriers. The financial concerns, cultural or language barrier, and transportation items each reflect all 62 patients; four patients answered 'not applicable' to the financial assistance awareness item (n=58 substantive responses for that panel).

benefits, improving patient outcomes, enhancing students' empathy and cultural competence, and easing the burden on public healthcare systems.^{18,19}

The clinic's impact can be viewed in three areas: accessibility, cultural concordance, and clinical scope. First, our operational model ensured timely access. Two-thirds of patients were evaluated within one week, and 95% within two weeks, significantly shorter than the 30–90-day wait typical in public healthcare systems.^{1,4} The walk-in model allowed patients with chronic joint or spine pain prompt evaluation, bypassing bureaucratic hurdles. Nearly one-third of local patients missed appointments due to transportation difficulties; however, our twice-weekly, community-based clinic, which was geographically closer to many underserved communities, mitigated this barrier substantially, further supported by organizational shuttle services that were available during certain times of the year.

Second, patient engagement benefited from cultural and linguistic congruence. Our patients spoke over ten languages, including English, Spanish, Urdu, Arabic, Bengali, Tigrigna, and Amharic. Around 40% reported prior difficulties making healthcare decisions due to language or cultural barriers. Deploying multilingual volunteers and culturally competent care teams likely contributed to high patient satisfaction—over 96% rated their initial experience 7 or higher on a 0-to-10 scale. These

Figure 5. Patient experience and satisfaction among surveyed patients (N=62).



Appointment wait time, perceived improvement in condition, feeling informed about treatment options, and satisfaction with care rated on a 0-to-10 numerical scale, binned as 9-10, 7-8, 4-6, and 0-3.

findings align with prior research indicating culturally matched care improves trust, compliance, and outcomes.²⁰

Third, despite being student-run, our clinic's clinical scope and efficiency matched traditional outpatient practices. On-site digital radiography and ultrasound enabled timely diagnoses of fractures, effusions, and soft tissue pathology. Medical students and attending physicians performed corticosteroid injections, splinting, and prescribing during a single visit. Emergent or complex cases received timely hospital referrals. Unlike SRFCs primarily offering screenings, our clinic provided definitive management for conditions such as degenerative joint disease, sciatica, carpal tunnel syndrome, and inflammatory arthritis. While 55% of patients reported symptom improvement upon discharge, the broader value included accurate diagnosis, actionable treatment plans, and reliable referral paths, directly reducing long-term complications and enhancing patient autonomy.

This model also offers significant educational value. Musculoskeletal health remains underrepresented in medical education, yet accounts for 10–15% of primary care visits.^{21,22} Students in our clinic learned focused physical exams, imaging interpretation, and procedural skills under real-world constraints. Equally valuable, students gained insights into social determinants of health through direct patient interactions. Previous research shows SRFC involvement improves students' communication skills, empathy, cultural awareness, and influences career paths towards underserved care.²³ Our experience aligns with these findings, as 70% of participating students (7 of 10) reported increased interest in fields such as orthopedics, physical medicine, or public health. The educational

benefits in clinical skills and professional development strongly support replicating similar programs at other institutions.

While most patients reported improvement and satisfaction, some did not experience meaningful change or felt less informed about their treatment options. These findings likely reflect common barriers in musculoskeletal care, including limited health literacy, multimorbidity, and the constraints of student-run, resource-limited settings. Prior qualitative work shows that disadvantaged patients often misinterpret “cannot be cured” as “nothing can be done,” underscoring the need for clearer communication and self-management support.²⁴ Implementation studies likewise highlight gaps in clinician training and systemic barriers such as limited infrastructure and time pressures that hinder delivery of high-value care.²⁵ To address these issues, our clinic plans to enhance communication through teach-back and multilingual after-visit summaries, expand interpreter access, and introduce navigator-led referral tracking. Proactive follow-ups, care pathways, and group education for chronic spine and knee pain will further promote engagement and self-management. These strategies, combined with patient-reported outcome tracking, aim to reduce unmet needs and sustain improvements in musculoskeletal health among underserved populations.

Limitations

While the study included all surveyed patients over a defined period, the overall sample size was modest. All 62 patients completed the survey at the surveyed encounter, and all variables reported here were captured at that encounter, so every patient contributes complete data to every analysis and none was excluded. Three patients (4.8%) did not return for follow-up and therefore provided no post-visit information, which limited assessment of longer-term outcomes. No data were imputed.

Conclusions

This study demonstrates the powerful role student-run clinics can play in expanding orthopedic care for uninsured and underserved populations. At the ICNA Relief orthopedic clinic, nearly all of the 62 patients were uninsured, over half were unemployed, and many faced transportation, financial, and language barriers to timely care. Despite these obstacles, the clinic provided consistently high-quality services—more than 75% of patients rated their care 9 or 10 out of 10. On-site digital radiography, ultrasound-guided procedures, and culturally responsive care enabled meaningful interventions in a single visit. The clinic’s patient population mirrors Dallas County’s broader landscape of immigrants, refugees, and non-English speakers, highlighting the urgent need for linguistically inclusive health services. Rather than serving as a temporary solution, this model demonstrates how structured triage, supervised student involvement, and culturally attuned care can together deliver timely, equitable musculoskeletal services and offer a scalable strategy for reducing orthopedic disparities in resource-limited urban settings.

Acknowledgements

We thank the ICNA Relief Medical Clinic Dallas and its staff for their partnership. We are especially grateful to Dr. Mohammad Uzair and Dr. Joseph Su for their clinical and academic mentorship, and to the patients who entrusted us with their care.

Disclosures

The authors have no conflicts of interest to disclose.

References

1. Mills LG, Newsom B, Lewis A, et al. Evaluating the scope of services and monetary impact of charity medical clinics in North Texas. *J Prim Care Community Health*. 2024;15:21501319241304143. doi:10.1177/21501319241304143 [LINK](#)
2. Ganguly AP, Alvarez KS, Mathew SR, et al. Intersecting social determinants of health among patients with childcare needs: a cross-sectional analysis of social vulnerability. *BMC Public Health*. 2024;24(1):639. doi:10.1186/s12889-024-18168-8 [LINK](#)

3. Ganguly AP, Martin R, Barnett E, et al. Childcare barriers and appointment nonadherence among women in a safety-net health system. *JAMA Netw Open*. 2025;8(4):e254715. doi:10.1001/jamanetworkopen.2025.4715 [LINK](#)
4. Cyr ME, Etchin AG, Guthrie BJ, Benneyan JC. Access to specialty healthcare in urban versus rural US populations: a systematic literature review. *BMC Health Serv Res*. 2019;19(1):974. doi:10.1186/s12913-019-4815-5 [LINK](#)
5. Hauschild MH, Wren TAL, Chavez M, Omar H, Goldstein RY. Transportation barriers in pediatric orthopedic clinic visits. *J Am Acad Orthop Surg Glob Res Rev*. 2024;8(9):e24.00231. 2024. doi:10.5435/JAAOSGlobal-D-24-00231 [LINK](#)
6. Reppas-Rindlisbacher C, Rawal S. Understanding linguistic inequities in healthcare: moving from the technical to the social. *BMJ Qual Saf*. 2024;33(7):416-418. doi:10.1136/bmjqs-2023-016873 [LINK](#)
7. Safiri S, Kolahi A, Cross M, et al. Prevalence, deaths, and disability-adjusted life years due to musculoskeletal disorders for 195 countries and territories 1990–2017. *Arthritis Rheumatol*. 2021;73(4):702-714. doi:10.1002/art.41571 [LINK](#)
8. McQuillan T, Wilcox-Fogel N, Kraus E, Ladd A, Fredericson M. Integrating musculoskeletal education and patient care at medical student-run free clinics. *PM&R*. 2017;9(11):1117-1121. doi:10.1016/j.pmrj.2017.03.008 [LINK](#)
9. Khadavi MJ, Matthews RL, Gottlieb K, Conway R, Davis W, Parker JC. Access to musculoskeletal specialists and resources in free and charitable clinics: a survey of clinic directors. *PM&R*. 2013;5(6):510-512. doi:10.1016/j.pmrj.2012.12.006 [LINK](#)
10. Liu MB, Xiong G, Boggiano VL, Ye PP, Lin S. Providing specialty care for the poor and underserved at student-run free clinics in the san francisco bay area. *J Health Care Poor Underserved*. 2017;28(4):1276-1285. doi:10.1353/hpu.2017.0113 [LINK](#)
11. Bret J. Dallas County has the highest rate of uninsured people in North Texas. Why? *Texas Standard*. August 4, 2023. Accessed July 15, 2025. <https://www.texasstandard.org/stories/dallas-county-highest-rate-uninsured-north-texas-health-care-access/> [LINK](#)
12. U.S. Census Bureau. QuickFacts: Dallas city, Texas. *U.S. Census Bureau*. <https://www.census.gov/quickfacts/fact/table/dallas-city-texas/PST045223>. Accessed June 27, 2025 [LINK](#)
13. Pacheco MR. Dallas is expanding language access for Spanish-speaking residents. *The Dallas Morning News*. Published April 18, 2024. Accessed June 25, 2025. <https://www.dallasnews.com/news/2024/04/18/city-of-dallas-is-expanding-language-access-for-spanish-speaking-residents/> [LINK](#)
14. Maddox W. Pride or problem? Parkland Health was again the busiest emergency department in the country. *D Magazine*. October 23, 2023. Accessed June 27, 2025. <https://www.dmagazine.com/healthcare-business/2023/10/pride-or-problem-parkland-health-was-again-the-busiest-emergency-department-in-the-country/> [LINK](#)
15. Rupert DD, Alvarez CV, Burdge EJ, Nahvi RJ, Schell SM, Faustino FL. Student-run free clinics stand at a critical junction between undergraduate medical education, clinical care, and advocacy. *Acad Med*. 2022;97(6):824-831. doi:10.1097/ACM.0000000000004542 [LINK](#)
16. Arenas DJ, Lett E, Klusaritz H, Teitelman AM. A Monte Carlo simulation approach for estimating the health and economic impact of interventions provided at a student-run clinic. Van Wouwe JP, ed. *PLoS One*. 2017;12(12):e0189718. doi:10.1371/journal.pone.0189718 [LINK](#)
17. Gertz AM, Frank S, Blixen CE. A survey of patients and providers at free clinics across the united states. *J Community Health*. 2011;36(1):83-93. doi:10.1007/s10900-010-9286-x [LINK](#)
18. Prestes Vargas J, Smith M, Chipchase L, Morris ME. Impact of interprofessional student led health clinics for patients, students and educators: a scoping review. *Adv in Health Sci Educ*. 2025;30(1):321-345. doi:10.1007/s10459-024-10342-2 [LINK](#)
19. Lie DA, Lee-Rey E, Gomez A, Bereknyei S, Braddock CH. Does cultural competency training of health professionals improve patient outcomes? A systematic review and proposed algorithm for future research. *J Gen Intern Med*. 2011;26(3):317-325. doi:10.1007/s11606-010-1529-0 [LINK](#)
20. Jacobs EA, Lauderdale DS, Meltzer D, Shorey JM, Levinson W, Thisted RA. Impact of interpreter services on delivery of health care to limited-English-proficient patients. *J Gen Intern Med*. 2001;16(7):468-474. doi:10.1046/j.1525-1497.2001.016007468.x [LINK](#)
21. DiGiovanni BF, Sundem LT, Southgate RD, Lambert DR. Musculoskeletal medicine is underrepresented in the american medical school clinical curriculum. *Clin Orthop Relat Res*. 2016;474(4):901-907. doi:10.1007/s11999-015-4511-7 [LINK](#)
22. Houston TK, Connors RL, Cutler N, Nidiry MA. A primary care musculoskeletal clinic for residents: Success and sustainability. *J Gen Intern Med*. 2004;19(5):524-529. doi:10.1111/j.1525-1497.2004.30173.x [LINK](#)
23. Kalistratova VS, Nisanova A, Shi LZ. Student-run free clinics may enhance medical students' self-confidence in their clinical skills and preparedness for clerkships. *Med Edu Online*. 2024;29(1):2348276. doi:10.1080/10872981.2024.2348276 [LINK](#)
24. Adams J, Lowe W, Protheroe J, et al. Self-management of a musculoskeletal condition for people from harder to reach groups: a qualitative patient interview study. *Disabil Rehabil*. 2019;41(25):3034-3042. doi:10.1080/09638288.2018.1485182 [LINK](#)
25. Briggs AM, Houlding E, Hinman RS, et al. Health professionals and students encounter multi-level barriers to implementing high-value osteoarthritis care: a multi-national study. *Osteoarthritis Cartilage*. 2019;27(5):788-804. doi:10.1016/j.joca.2018.12.024 [LINK](#)