



Pushing and Establishing New Frontiers: An Examination of Publication Patterns From 2015-2023 in the Journal of Student-Run Clinics

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Abstract

Background: The Journal of Student-Run Clinics (JSRC) has published research from student-run clinics (SRCs) for almost ten years. However, to date, no study has aimed to summarize publishing trends observed at JSRC. Thus, we aimed to characterize these JSRC publications in order to identify patterns in published research topics, identify research gaps, and inform future research priorities.

Methods: We adapted scoping review methodology and included all articles published in the JSRC from 2015 to 2023. For each article, we assessed for publication year, article type, university affiliated with the SRC, region of the United States (US) the SRC is located in, disease focus, outcomes studied, data collection methods used, sample size, interventions involved, analytic approaches used, and concept domains involved. Concept domains were determined using a taxonomy from the Agency for Healthcare Research and Quality (AHRQ) to identify patterns in topical content from published articles.

Results: This review included 167 articles. Over time, we observed an increasing trend of overall publication volume (e.g., 5 in 2015 vs 23 in 2023). Studies typically occurred in the primary care context with fewer studies in other outpatient specialties (e.g., ophthalmology, physical therapy). The most common domains were workforce (21.3%), workflows (17.4%) and practice/quality improvement (17.4%). Empirical studies typically used surveys (52.1%) or chart reviews of patient records (38.5%) for data sources. Less than half of the studies aimed to assess the impact of an intervention.

Conclusion: This review highlighted significant strides made on research in SRCs. Future studies reporting intervention may benefit from adhering to established reporting guidelines. Additional studies are needed across several areas, including understanding the impact of non-primary care SRCs, assessing quality of care and clinical outcomes, and employing qualitative and/or mixed methods approaches when studying interventions' impact on patients and volunteers.

Introduction

In 2015, the Journal of Student-Run Clinics (JSRC) was conceptualized as an online-only, open-access platform to bring to the forefront

the findings from several research endeavors from around the United States (US) that centered around the relatively unique operating structure of student-run clinics (SRCs).¹ As the flagship journal of the Society of Student Run Free Clinics

(SSRFC), a consortium of 386 student run clinics,² JSRC seeks to facilitate an ‘ongoing discussion of patient care, student education, clinic management, ethics, experiences, and other facets of SRCs.’¹¹ The first volume of articles highlighted a variety of topics, including evaluating the impact of SRC on quality of care and healthcare utilization as well as exploring questions on SRC administration. Since its inception, the JSRC has observed a gradual increase in activity as evidenced by the number of submissions received annually and the number of articles that subsequent volumes included. To date, over 150 articles have been published in the JSRC.

Similar to the educational value of volunteering in a SRC,³ the JSRC has also contributed to many clinical trainees’ professional development through several mechanisms. These include providing opportunities for them to submit their research, to serve as a peer reviewer, or to join the editorial board. For many submitting authors, their submissions may represent both their first major endeavor in preparing a manuscript and exposure to editorial review processes. Since 2015, the JSRC has observed an expansion in the breadth of clinical disciplines represented in both the articles’ topics and authors. In addition to trainees in allopathic and osteopathic medical training programs, the JSRC has also published works from trainees in other areas, such as pharmacy and veterinary medicine.⁴⁻⁹ Furthermore, the journal has published articles from SRCs based outside of the US,^{10,11} underscoring that students organizing and participating in service-based learning is a global phenomenon.

As the JSRC marches toward developing its 10th volume, we aim to review the JSRC’s publishing trends and to identify potential gaps in the literature. These findings may inform the future publication priorities of the JSRC and offer insights toward topics that may be valuable to participants of SRCs and the communities they serve.

Methods

This study adapted a scoping review methodology.¹² We included all articles published in the JSRC since its inception in 2015 until the end of the 2023 calendar year. This included all article

types that the JSRC accepts (original studies, descriptive reports, reviews, perspectives, editorials). We did not include any conference abstract submissions from the SSRFC conference because these submissions are not publicly published.

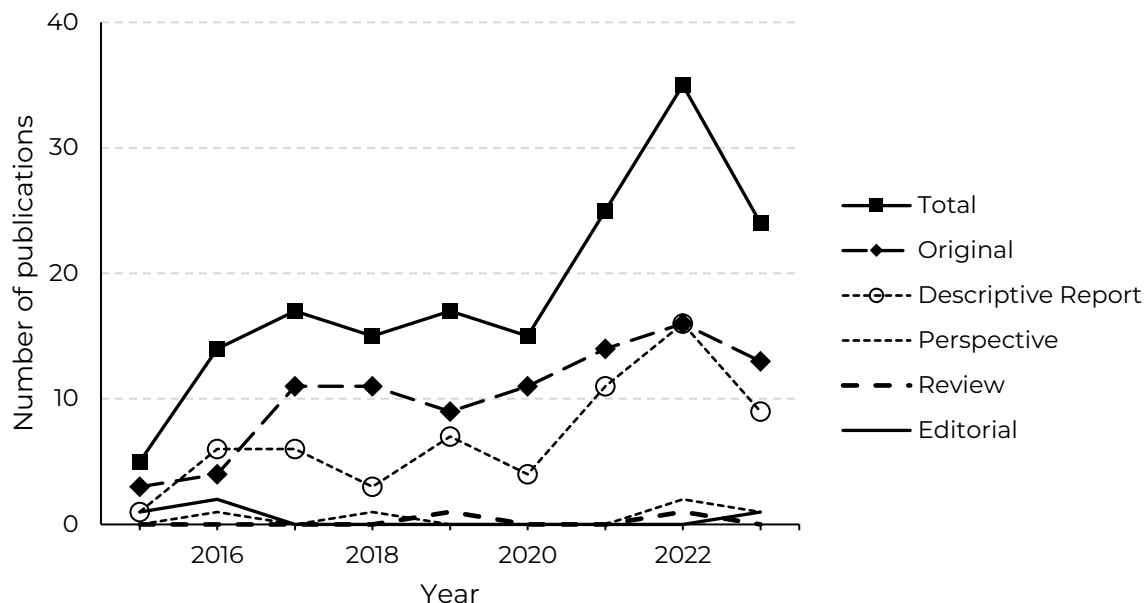
The authors individually reviewed each article and independently extracted the following data: 1) publication year, 2) article type, 3) university affiliated with the SRC, 4) region of the US the SRC is located in, 5) disease focus (if any), 6) studied outcomes of interest, 7) data collection approaches used, 8) sample size, 9) interventions tested (if any), 10) quantitative and qualitative analytical methods used (if applicable), and 11) concept domains. For empirical articles, we categorized the region of the US into the West, Midwest, South, Northeast, and outside of the United States. The region groupings were adapted from those used by other large public survey datasets.^{13,14} For all articles, we adapted the Agency for Healthcare Research and Quality (AHRQ)’s topical taxonomy to map each included article to relevant concept domains using the article’s study objective, populations of interest, and outcomes examined.¹⁵ We chose this taxonomy because it encompassed a wide range of concepts that were relevant towards the topical domains published in the JSRC. Since we were more interested in overall publishing trends, we did not extract specific study findings nor perform a quality appraisal for included studies. We used Microsoft Excel (version 2404, Microsoft, Redmond, WA) to complete the data extraction of included articles.

Results

Publication volume

Our analytic sample consisted of 167 published articles, which included 92 (55.1%) original studies, 63 (37.7%) descriptive reports, six (3.6%) perspectives, four (2.4%) editorials, and two (1.2%) reviews. Since the journal’s inception in 2015, it has published an increasing number of articles over time. Similar trends are also reflected in the number of original studies and descriptive reports over time (Figure 1). For the remainder of this section, we reported on the characteristics and content of empirical articles (i.e., only original studies or descriptive reports) (n=155).

Figure 1. Publication volume by article type, 2015-2023



Characteristics of SRCs

Most studies (149/155, 96.1%) reported data on SRCs that were located in the US. Of the remaining six studies, four described service mission trips affiliated with a SRC from the US. The final two studies reported on SRCs in Canada and China. Of the 149 studies reporting on US-based SRC care delivery, most were from the South (53/149, 35.6%), Northeast (40/149, 26.8%), or Midwest (37/149, 24.8%). To date, the JSRC has published articles from 32 of the 50 states (Figure 2). Studies often occurred in the primary care setting. Less commonly represented outpatient specialties included ophthalmology (n=6), physical therapy (n=5), behavioral health (n=4), dermatology (n=4), women’s health (n=1), dental (n=1), and occupational therapy (n=1).

Article content

After mapping all 155 articles to AHRQ’s concept domains, we found that most had examined workforce (21.3%), workflows (17.4%), practice or quality improvement (17.4%), training (14.8%), implementation (13.5%), social determinants of health (11.6%), screening (8.4%), coronavirus disease 2019 (COVID-19) (7.7%), healthcare utilization (7.7%), and patient experience (6.5%). We summarize these patterns in Figure 3. Five or fewer

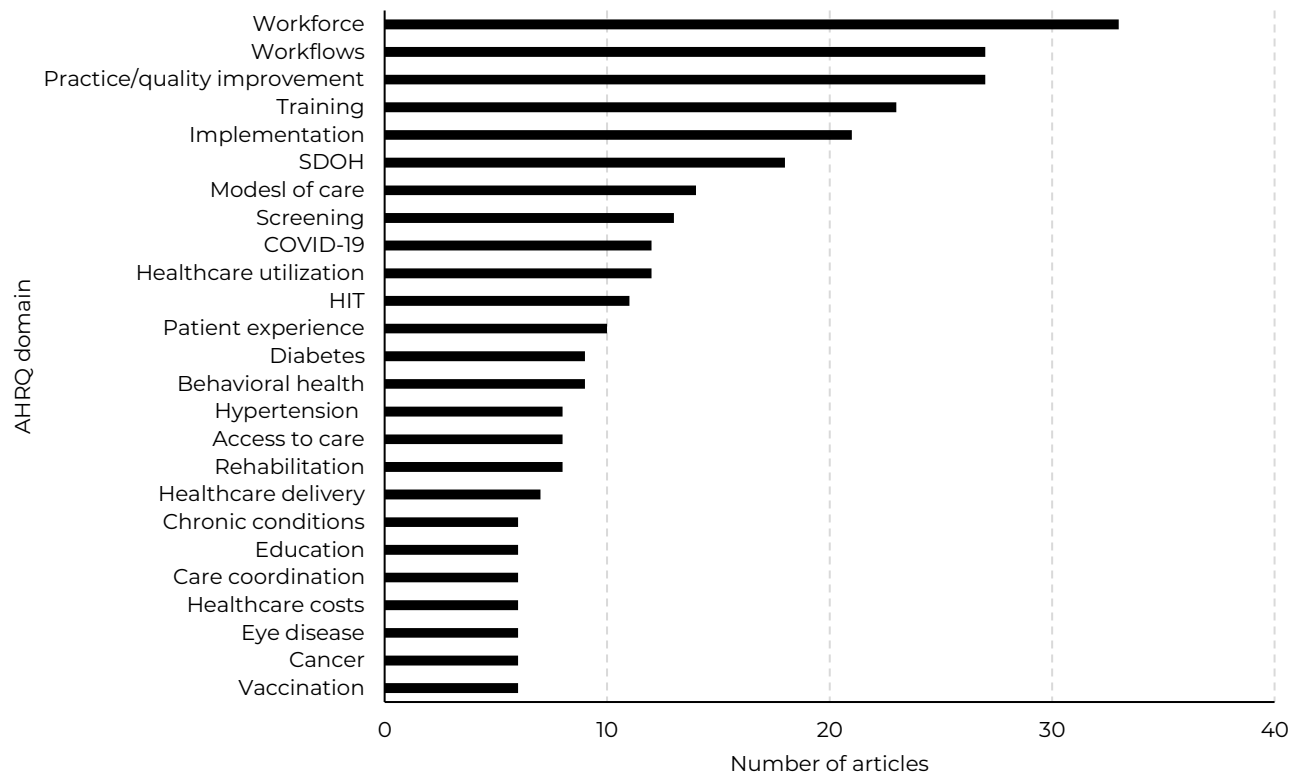
articles examined health literacy, children/adolescents, nutrition, skin, patient adherence/compliance, human immunodeficiency virus (HIV), or dental and oral health. Concept domains that may be relevant to SRCs but were not examined by any article included alcohol use, caregiving, back health and pain, disabilities, domestic violence, antibiotics, and urinary tract infections (UTIs).

In general, studies tended to not have a particular disease focus. The few studies (n=40) that restricted their samples to patients with specific diseases included metabolic diseases (e.g., hypertension, diabetes, dyslipidemia) (n=19), substance use (n=3), depression (n=3), and human immunodeficiency virus (HIV) (n=2). Other specific findings are reported in the online appendix.

Methodologies used

About 117 of the 155 (75.5%) articles aimed to report on the findings of original data collection and analyses. Across these 117 studies, data sources used included surveys (52.1%), chart reviews of patient records (38.5%), administrative data (e.g., public health department data, cost ledgers) (12.0%), interviews (4.3%), observations or time-and-motion data (3.4%). One study used video logs. Although most studies used only one

Figure 3. Frequency of AHRQ domains in JSRC, 2015-2023



AHRQ: Agency for Healthcare Research and Quality; JSRC: Journal of Student-Run Clinics; SDOH: social determinants of health; COVID-19: coronavirus disease 2019; HIT: health information technology

over time. Overall, we observed several notable trends in publication volume over time, characteristics of SRCs, topical content, and methodological approaches used. We comment below on the implications that these trends have on additional research needs and publication priorities.

SRC Locations

We found that most SRCs in our review were in the US with one clinic located in China and the other in Canada. Another three studies reported on US-based clinic service trips to Honduras and Mexico. The high prevalence of US-based studies may stem from differences in the barriers to accessing care across different types of health systems where SRCs may be more prevalent in areas with access limitations (e.g., lack of insurance coverage, long wait times). This trend may also stem from the requirement to publish articles in English or the marketing efforts of the JSRC in mainly US-based venues (e.g., annual SSRFC conference in the US). To reach a broader audience

though the JSRC recently has begun increasing its social media presence.

We also found differences in the number of JSRC publications by region of the US. In particular, more studies were encountered from the Southern, Northeastern, and Midwestern states. Meanwhile, fewer studies were found from Western states. The reason for this potential pattern remains unclear and may partially stem from differences in the number of academic medical centers, opportunities to disseminate research findings at a conference, and membership status with the SSRFC. Interestingly, we also found that twelve states were under-represented in JSRC. For some states (e.g., Alaska), this may partly stem from the lack of a long-established academic medical center. For other states, this may suggest no SRC established, discontinued SRCs, or a need for additional outreach and support for active SRCs from the SSRFC and JSRC. It may be helpful to assess the reasons for these differences in further qualitative research. Furthermore, it

may be worthwhile to identify determinants of research output among SRCs across the U.S. to inform and guide the development and maturation of research infrastructure.

Research Areas

Our review highlighted the high prevalence of research that occurred in primary care contexts at SRCs published in JSRC. Meanwhile, the submissions received on other clinical specialties outside of primary care (e.g., dental, behavioral health) remain nascent. This finding may reflect the various U.S. clinic models and currently offered health care services from SRCs.¹⁶ Based on several case studies published in JSRC that detail the initiation of a SRC,¹⁷⁻¹⁹ this endeavor can be complex and involve logistical challenges. Oftentimes, SRCs begin with a primary care focus. Based on patient need, institutional support, and availability of faculty preceptors and student volunteers, the SRC may introduce additional clinics that specialize in specific services. Notably, the development of additional clinic services imposes additional types of logistical challenges,²⁰⁻²² such as the need to address in-network referral processes, team-based care expectations, and integrating patient records across the different clinic services into a single repository. Nonetheless, the gradual emergence of multispecialty SRCs represent several areas of future inquiry, such as descriptions of these care models, characterization of the types of treatments that can be offered in non-primary care clinics, and the impact of these clinics on quality of care and patient outcome measures that are specific to these clinics' specialties. There may also be a need for a national-level survey to update the prevalence of SRCs as well as characterize the prevalence of multispecialty SRCs versus those only offering primary care services.

We also observed patterns in the topical focus of articles. First, there was a relatively large topical focus of articles examining organizational and medical education questions, such as describing the implementation models for SRC care structures, describing the volunteer base of faculty members and students, and assessing the impact on professional development and education from volunteering in SRCs. These findings suggest that SRCs may also be developing student

volunteers' competencies in systems-based practice (e.g., managing administrative structures of health care delivery) in addition to training in bedside skills and clinical competencies. While studies have been published on faculty members' motivations for volunteering in SRCs, less is known about their motivations for mentoring students' research projects in SRC settings. This represents an area in need of studies. Interestingly, the inaugural JSRC editorial noted an additional topic that has, to date, not been thoroughly investigated empirically - ethics of SRCs and how SRCs could support medical education in this area.¹ This may provide an additional line of inquiry.

From a clinical standpoint, fewer studies attempted to assess questions on quality of care and clinical outcomes. The most studied type of diseases included chronic diseases (e.g., diabetes, hypertension). This may be expected since chronic conditions are also recognized as some of the most common conditions encountered in primary care settings.²³ However, it is important to note that the absolute number of articles focusing on these clinical concepts remains low and point toward a need for additional research on chronic care management. Our review also identified several types of diseases that were understudied in JSRC relative to their prevalence in other primary care settings, such as acute care (e.g., upper respiratory infections, back pain, UTIs) and behavioral health and substance use disorders.²³ Although studies on clinic operations and medical education are important, there persists a larger need for studies describing or assessing the impact of interventions on patient quality of care and clinical outcomes. There may also be a need to report on standardized quality of care measures, such as those used by Medicare quality measurement programs,²⁴ to facilitate comparability across studies. Such reporting could also improve the SRC's ability to apply for funds and solicit donations to maintain and expand their services.

Methodologies used

This review further highlighted an assortment of methodological approaches used across JSRC articles. First, there was a greater prevalence of quantitative approaches used compared to

qualitative approaches. This may partly stem from a greater focus on quantitative data collection and analysis competencies in medical school when compared to qualitative equivalents. This may also stem from the relative ease in surveying participants or doing chart reviews compared to interviewing participants, transcribing conversations, and analyzing transcripts for themes. We also noted that there were a substantial number of articles that tested the impact of interventions but did not use mixed-methods designs in the evaluation. Emerging guidance on evaluations of outcomes from both implementation effectiveness and intervention efficacy suggest a growing need for researchers to adopt mixed-methods approaches (e.g., combining chart review or administrative data with interviews or surveys).^{25,26} Research in SRC settings can also stand to benefit from such approaches. SRCs may benefit from collaborations with doctoral students in disciplines that use qualitative or mixed-methods approaches (e.g., anthropology, sociology, implementation science) to augment the available evaluation methods that SRC researchers can use. Second, many intervention studies were undertaken as part of quality or practice improvement efforts and aimed to disseminate their findings to inform other SRCs' care delivery. To this end, sufficient details on intervention design and its implementation is necessary. However, the range of details described about interventions was highly varied. Unfortunately, this poses challenges in identifying components that contributed to intervention fidelity that other SRCs can adopt in their own settings. Consequently, to ensure the reporting of these key details, there may be a need for JSRC to require future authors to demonstrate compliance with common reporting guidelines for interventional studies, such as the template for intervention description and replication (TIDieR) checklist,²⁷ or encourage the reporting of other key intervention and implementation details in appendix files. Lastly, while it was expected that the sample sizes may be generally low due to the varying patient volumes that SRCs have, outcome measures were generally evaluated using a timeframe of one year or less. This may be influenced, in part, by average length of patients' use of SRC services and by historical SRC student leadership models where leadership

teams experience annual turnover. Consequently, there is a persistent need for evaluating the long-term impact and sustainability of implemented interventions.

Limitations

These findings should be interpreted with some limitations. First, our analysis does not account for the submissions that were not accepted for publication or were lost to follow-up with the corresponding authors during the editorial review process. This review also does not account for SRC research published in other journals, which may impact our reporting of publishing SRCs and research topics covered. Furthermore, we were not able to access data on abstract submissions made to the SSRFC conference, which may reflect differing trends on research that SRCs are conducting. Lastly, our findings were largely informed by single-center studies where findings may not generalize to other SRCs due to differences in patient population, availability of services, and organizational constraints. To help facilitate more multi-institutional studies, the SSRFC/JSRC Inter-Clinic Grant serves as one such initiative to help bridge this gap by fostering collaboration between SRCs and provide support for novel research ideas.²⁸ Notwithstanding these limitations, this review highlighted additional areas of research for SRCs in the next decade. Although outside the scope of this review, it may be valuable to identify potential differences in publishing trends between SRC research published in JSRC compared to other journals.

Conclusions

This review showcases the significant strides made by SRCs in both caring for the vulnerable and underserved across our communities and in diversifying the educational experiences of healthcare trainees and the practices of healthcare professionals. Looking forward to the future, we also identified areas of future research including ethics in SRCs and the need for multi-institutional studies.

Disclosures

All co-authors are currently serving as either an assistant

editor, associate editor, or editor-in-chief with JSRC.

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