

BMJ Open Examining students' perception of rural practice following an educational strategy aimed at preparing postsecondary students for rural careers: a systematic review protocol for qualitative studies

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ABSTRACT

Introduction Rural areas are widely acknowledged as being at a workforce disadvantage when compared with urban populations. One of the factors contributing to this disparity is the paucity of workforce professionals who live and practice in rural areas. Educational strategies used to train these workforce professionals may help better prepare students for rural careers and thus increase retention. The purpose of this systematic review is to examine students' perceptions of rural practice following an educational strategy used to prepare students for rural careers.

Methods and analysis Searches will be conducted in the following databases: Medline (Ovid), CINAHL (Ebscohost), ERIC (Proquest), Social Services Abstracts (Proquest), PsycINFO (Proquest) and IEEE Xplore. The literature search will be limited to articles published in English in the last 20 years. Data will be extracted for author(s), year of publication (2001–2021), country of origin, research question, research design, participants, where the study takes place (eg, classroom, community), educational strategies used, theoretical approach and findings related to the research question (ie, student perceptions). Methodological validity will be assessed using standardised tools. Two independent reviewers will conduct data extraction and quality appraisal, and any disagreement will be adjudicated by discussion or with a third reviewer. Results will be presented in tabular and narrative formats.

Ethics and dissemination This review does not require formal ethical approval as it does not involve direct student contact or student-identifiable data. The final systematic review will be submitted to a peer-reviewed journal.

INTRODUCTION

It is well established that living in a rural setting in large countries including Canada, the USA and Australia presents many unique challenges compared with more urban areas.^{1–3} One of these challenges is the constant struggle to access the capital

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Obtaining a deeper understanding of students' thoughts and feelings following a rural education strategy or experience is crucial to improving rural preparedness, education and retention.
- ⇒ Examining students' perception following a rurally focused education strategy in a wide array of careers preparation programmes will allow for a more comprehensive understanding of rural education strategies.
- ⇒ This protocol aims to minimise bias by using The Joanna Briggs Institute Critical Appraisal Checklist for Qualitative Research.
- ⇒ This study is limited by the data quality and content presented in the original article.
- ⇒ Bringing qualitative research together may decontextualise the findings.

provided by the 'professional' workforce. In this case, we are defining the professional workforce as careers that typically requires postsecondary education and can include teachers, healthcare professionals, social workers and lawyers. The presence of these professions, or combinations of these professions, can play a significant role in improving rural residents' well-being. For example, individuals who live in rural settings have an all-cause mortality rate that is higher than urban residents in Canada^{4 5}; one explanation for this is the dearth of healthcare professionals including, doctors, nurses, physiotherapists, pharmacists and dentists in non-metropolitan areas.⁶ In the USA, there are shortages of doctors,⁷ dentists,⁸ teachers⁹ and attorneys in non-metropolitan areas.¹⁰ This is concerning, as many of these professions can have an impact on a person's well-being. For example, the lack of attorneys can make individuals



experiencing intimate partner violence more vulnerable as they might have to spend more time in dangerous situations awaiting legal counsel.¹⁰ It is imperative that the number of rural workforce professionals increases, as this could substantially impact the sustainability and the quality of life of rural people.

Researchers, policy-makers and communities in Japan, the USA, Australia and Canada have attempted different strategies to recruit and retain rural workforce professionals.¹¹⁻¹³ To recruit health professions in particular, strategies have included financial incentives, offering unique reimbursement schemes, marketing the benefits of rural living, or hiring specialised recruiters. Overall, these strategies have seen relatively poor results, with the greatest success coming from financial incentives.¹¹ However, financial incentives are usually more successful for recruitment purposes and less effective when retaining workforce professionals.¹⁴ One area that has shown some promise and can be optimised to prepare workforce professionals by changing their perspective on rural practice is the educational strategies used to effectively prepare postsecondary students for rural careers.¹⁵ If students are effectively prepared for the unique opportunities and have positive feelings toward rural practice, it might lead to higher levels of work satisfaction and retention.¹⁶

Educational strategies are activities that promote knowledge and skill development. These strategies can include rural placements (ie, an educational opportunity where a student has a chance to work in their field or a related field in a rural community),¹⁷ rural focused curriculums (ie, courses offered or learning objectives of a course that are focused on rural practice),¹⁸ extra development opportunities (ie, work-place opportunities that are not officially tied to a course or learning outcome)¹⁹ or other multifaceted approaches that use a combination of these different strategies.²⁰ While perceptions of rural education strategies are not always measured, other outcomes of interest related to perceptions of rural practice include intent to practice, retention and preparation to practice in rural areas.

One of the most common educational strategies used to prepare postsecondary students for rural careers and challenge their preconceived notions on rural practice is experiential learning. Experiential learning is a learning process where students learn by doing and reflecting on the experience,²¹ and most professions have adopted some form of it. One example of experiential learning is in teaching education programmes where students complete a practicum where they are required to do most of the duties of a classroom teacher, that is, lesson preparation, classroom management, building relationships, and assessment and evaluation. After completing the practicum, students produce a learning artifact from reflecting on their practicum. Using experiential learning in rural communities has been recommended as an educational strategy for preparing students for working in rural areas and for workforce retention.²²

A review found that students who had a rural placement increased the likelihood of rural practice by more than four times.²³ Another strategy that can be used is creating specific course expectations focused on aspects of rural living and practice. In general, each institution has a certain amount of autonomy in composing their course expectations and curriculum.²⁴ Some institutions have made strategic decisions to include topics that will specifically prepare students for rural careers.²⁴ A scoping review on rural pharmacy curriculum and placements suggested that there was not enough evidence on universities that include a rurally focused curriculum to make any strong conclusions on their effectiveness on aiding the rural pharmacy workforce.²⁵ In some jurisdictions, resource packages have been created to try and provide more support to preservice teachers, but the success of these programmes has yet to be completely analysed.²⁶ Finally, some programmes use multifaceted approaches to increase the retention of rural workforce professionals. One common example is the rural pipeline, which takes a longitudinal approach. The rural pipeline attempts to support the different needs of the rural workforce professional through their education and career. Several studies suggest this approach can positively affect rural practice and retention.²⁷ In fact, one study that examined a school partially based on the pipeline model found that students educated at that school were 2.57 times more likely to practice in rural areas.²⁸ However, these studies are limited as some correlate educational strategies with rural retention, which fails to articulate how or why the programme is successful.

Qualitative research has provided valuable evidence on how perceptions of rural practice or rural preparedness have changed following participation in an educational strategy aimed at training students for rural practice. For instance, a study by Lopez *et al* on rural dental students suggested that their rural experiential learning opportunities helped correct many of the misconceptions they had about practicing in rural communities. The placement provided opportunities to show that rural dentists are busy, use cutting edge technology and the practice included more than just simple procedures. This study also found that the placement helped learners correct rural living misconceptions as they saw the diversity in rural communities and how the rural lifestyle could match their personality.²⁹ Another study on medical students indicated that many aspects of the rural placement, specifically the clinical skills, passionate teachers and rewarding work, were important factors encouraging and preparing students for rural careers.³⁰ Finally, one study on Australian school teachers suggested that since rural practicums were optional, students were not prepared for these experiences.³¹ Using qualitative evidence from studies that examine student's perceptions of rural practice following a rural focused educational strategy might help to explain how or why a certain strategy may be effective. Synthesising the evidence from student perceptions has the potential to allow postsecondary programmes to

make critical changes to their educational programmes that may improve the overall student experience and help promote rural practice, thus increasing rural retention.

Previous reviews have examined medical school programmes to increase the supply of rural physicians,³² the association between medical education and rural practice,³³ and interventions for supporting nurse retention in rural areas.²⁷ However, these reviews are limited in their narrow scope by examining a singular professional programme and superficial examination of educational strategies. Combined, these limitations have created a gap in understanding if students' perception of rural practice changes after a rurally focused education strategy. A preliminary search of PROSPERO, the Cochrane Database of Systematic Reviews and the Joanna Briggs Institute (JBI) Evidence Synthesis was conducted, and no similar reviews were found. Understanding successful educational strategies is imperative, as they have the potential to help rural areas retain workforce professionals, and these strategies can be transferred across disciplines and countries in sustainable ways.

Review objective

This systematic review aims to examine students' perceptions of rural practice following an educational strategy aimed at preparing postsecondary students for rural careers. Specifically, the review questions are

1. What types of educational strategies are used to prepare postsecondary students for rural careers?
2. What are students' perceptions of rural careers following participation in a rural education strategy?
3. In what circumstances do students report a positive change in perception of rural practice?

METHODS AND ANALYSIS

We followed the Preferred Reporting Items reporting guidelines for Systematic Reviews and Meta-Analysis for Protocols 2015 and the JBI manual on systematic reviews of qualitative evidence.^{34 35} However, there is no plan to evaluate the cumulative strength of the evidence.

Inclusion criteria

Participants

This review will consider studies that include postsecondary students currently preparing for careers in rural environments or are subject to educational strategies that may influence rural career inventiveness, preparedness or retention. Postsecondary students include university, college, trade and vocational school students.¹³ We are also including students in medical residency.

Phenomena of interest

The phenomena of interest fall under the broadly defined 'educational strategies', which are activities that promote knowledge, including traditional in-class curricula and non-traditional methods of teaching and learning. This may be informed by the fields of rural education, rural

pedagogy, rural career preparation, rural training and rural curricula.

Context

The systematic review will consider qualitative studies from Canada, Australia, Scandinavia and the USA that examines the impacts of rural-specific educational strategies that prepare postsecondary students for rural careers. These countries were chosen as they are all industrialised countries with similar percentages of the population living in rural areas. The term rural is heavily debated with each country or programme using their own unique definition so if the study defines the context as rural it will be included in the study. We recognise that using a non-standard definition of rural and limiting the countries in the review may limit the generalisability of this study.

Types of sources

Given the expansive definition of education strategies, a broad range of qualitative research articles will be considered. This includes, but is not limited to, for example, phenomenology, ethnography, thematic analysis, qualitative description and action research studies. Mixed-methods studies that include a qualitative component that is directly related to the research question will also be included. The literature search will be limited to articles published in English. Studies must have been published in the last 20 years. One of the limitations of this study is the inclusion criteria. Limiting the study on year, language, definition of rural and student may result in missing relevant literature. However, these search restrictions had to be included based on available resources. Refer to [table 1](#) for a summary of the inclusion criteria.

Search strategy

The search strategy will aim to locate qualitative research studies written in the English language and published between 2001 and 2021. A preliminary search of Medline (Ovid) was undertaken to identify articles on the topic. A health sciences librarian in consultation with the research team developed a search strategy that employs both keywords and subject headings, as detailed in online supplemental appendix I. To target qualitative studies, two qualitative research filters were adapted and used in this search.^{36 37} On peer-review and publication of the protocol, the search terms will be updated, and searches will be completed in Medline (Ovid), CINAHL (Ebscohost), ERIC (Proquest), Social Services Abstracts (Proquest), PsycINFO (Proquest), IEEE Xplore. The search strategy's final step will be to examine the reference list from the included articles to identify additional manuscripts

Study selection

Following the search, all identified records will be collated and uploaded into Zotero (Corporation for Digital Scholarship and Roy Rosenzweig Center for History and New Media, Virginia, USA) and duplicates removed. Second, following a pilot test, two independent reviewers will

Table 1 Inclusion and exclusion criteria for the systematic review

Concept	Inclusion	Exclusion
Participants	University students College students Vocational students Medical residents	Post graduate Rurally employed
Phenomena of interest	Educational strategies include but not limited to: Co-operative education Placement Special curriculum or courses Rurally focused schools	Non-educational strategies: Incentives
Context	Author defined rural areas in the following countries: Canada Australia Scandinavia USA	Undefined urban-rural classification
Types of sources	Qualitative research Phenomenology Ethnography Thematic analysis Qualitative description Action research Mixed method at the research team's discretion (ie, must be a thick description)	Quantitative research Opinion pieces Reviews

screen the titles and abstracts against the inclusion criteria. The full-text version of potentially relevant papers will be retrieved. Third, two independent reviewers will screen the full-text articles against the inclusion criteria. Reasons for exclusion of full-text papers that do not meet the inclusion criteria (eg, paper focuses on high school students) will be recorded and reported in the systematic review. Throughout the process, any disagreements will be solved through discussion or the inclusion of a third reviewer. The search results will be reported in full in the final systematic review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Systematic Reviews flow diagram.³⁸

Assessment of methodological quality

Two independent reviewers will critically appraise eligible studies for methodological quality using the JBI Critical Appraisal Checklist for Qualitative Research.³⁹ Authors of papers will be contacted to request any missing or incomplete data for clarification if required. Any disagreements will be resolved through discussion or by a third reviewer. The results of the critical appraisal will be reported in both narrative and tabular form.

Data extraction

Data will be extracted from papers included in the systematic review by two independent reviewers. The data

extracted will include specific details about the population (eg, profession, sample size), educational strategy used, geographical location, methods, key findings relevant to the review objectives (ie, student perceptions). The draft data extraction is listed in online supplemental appendix II, which has been previously piloted and will be modified and revised as necessary while extracting data from each included paper. Any changes to the tool will be included in the full systematic review. Findings and their illustrations will be extracted and assigned a credibility level by two independent reviewers. If the two reviewers have any disagreements, it will be settled through discussion or a third reviewer's inclusion. If required, the authors of the papers will be contacted to request additional or data clarifications. The results of the data extraction will be reported in tabular and narrative form.

Data synthesis

The finding will be combined using thematic synthesis as described by Thomas and Harden.⁴⁰ The synthesis involves three stages (1) 'line by line' coding of the text, (2) development of 'descriptive themes', (3) development of 'analytical themes'.⁴⁰ This approach aims to both synthesise the data from across different studies and allow us to create a hypothesis that 'go beyond' that data to generate new explanation or hypothesis. Due to the heterogeneity of the topic authors may use subsections, that is, placements, rurally focused schools, curriculum and so on to combine similar studies and then combine results across these subsections. The synthesis will be conducted by one reviewer using atlas.ti with experience in qualitative research and thematic analysis and then checked by a second reviewer with experience in thematic analysis to add rigour to the project.

Patient and public involvement

No patient or public involvement.

Ethics and dissemination

This review does not require formal ethical approval as it does not involve direct student contact or student-identifiable data. If possible, our findings will be published in a peer-reviewed journal or presented in scientific conferences. The final published article will report any changes and revisions arising from the protocol. The results can be used to help guide medical educators and curriculum designers in creating programmes that address the needs of the rural workforce.

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Contributors EC designed and wrote the grant for this project. EC designed the systematic review with input from BB and SMR. BB drafted the manuscript with input from SMR and EC. SMR both designed the search strategies in consultation with EC and BB and executed all the database searches. All authors approved the final product.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

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Appendix I. Search conducted on March 16-2021 in Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed citations, Daily Versions(R) 1946 to March 15, 2021.

Search Concept	Query	Total records retrieved
#1 – Professions	Social Work/ed[Education] or Social Workers/ed[Education] or Lawyers/ed[Education] or exp Health Personnel/ed[Education] or exp Health Occupations/ed[Education] or exp Educational Personnel/ed[Education] or exp Education, Professional/ or Teacher Training/ or Education, Predental/ or Education, Premedical/ OR exp Engineering/ed [Education] or exp students/ or exp Schools/ or (school* or program*).mp. or ((social work* or engineer* or account* or medical or nurs* or law or dent* or physician assistant*) adj3 student*).mp. or (health adj3 (personnel* or provider* or profession* or occupation* or worker*)).mp. or (medical resident* or lawyer* or attorn* or physician* or doctor* or physician assistant* or nurse practitioner* or psychologist* or psychiatrist* or dentist* or teacher*).mp.	2572181
#2 – Educational Strategies	Education/ or Curriculum/ or Education, Distance/ or exp Inservice training/ or Interdisciplinary Placement/ or International educational exchange/ or Mentoring/ or Mentors/ or Preceptorship/ or Teaching/ or Learning/ or Models, Educational/ or Problem-Based learning/ or exp Self-directed learning as Topic/ or exp Simulation training/ or Teaching materials/ or((teaching or training) adj3 (academic* or technique* or method* or activit* or model*)).mp. or (curricul* or teach* or pedagog* or learn* or instruct* or train* or educat* or course* or placement* or workshop* or mentor* or preceptor* or inservice* or in-service*).mp.	2685679
#3 - Rural	exp Rural Health Services/ or Rural Population/ or Rural Health/ or Hospitals, Rural/ or Medically Underserved Area/ or (medically adj3 underserv* adj3 (area* or population* or communit* or location*)).mp. or (geographic* adj3 isolat*).mp. or (isolated adj3 (communit* or population* or location* or area*)).mp. or (rural* or remote* or north* or regional).mp. or nonurban.mp. or non-urban.mp.	984023
#4 - Career	Career Choice/ or Professional Practice Location/ or Employment/ or (career* adj3 choice*).mp. or (practic* adj3 location*).mp. or employment*.mp.	119920

<p>#5 - Geographic Location</p>	<p>North America/ or exp Canada/ or exp United States/ or exp Australia/ or exp Scandinavian and Nordic Countries/ or (Canada* or Canadian* or Alberta* or British Columbia* or Manitoba* or New Brunswick* or Newfoundland* or Labrador* or Northwest Territori* or Nova Scotia* or Nunavu* or Ontari* or Prince Edward Island* or Quebec* or Saskatchewan* or Yukon*).mp. or North America*.mp. or (North adj1 American*).mp. or (USA* or (United adj States) or America*).mp. or (Alabam* or Georgia* or Kentuck* or Maryland* or New York* or Ohio* or Pennsylvania* or South Carolin* or Tennesse* or Virginia* or West Virginia* or Illinois* or Indiana*or Hoosier* or Michigan* or Minnesota* or Iowa* or Kansas* or Missouri* or Nebraska* or North Dakota* or Oklahoma* or South Dakota* or Wisconsin* or New England* or Connecticut* or Maine* or Massachusetts* or New Hampshir* or Rhode Island* or Vermont* or Idaho* or Montana* or Oregon* or Washington* or Wyoming* or Alaska* or California* or Hawaii* or Arkansa* or Florid* or Louisiana* or Mississippi* or North Carolin* or Arizona* or Colorad* or Nevada* or New Mexic* or Texa* or Utah* or Delaware* or New Jersey*).mp. or (Australia* or Australian Capital Territory*or Canberran* or New South Wales*or New South Welsh* or Northern Territor* or Queensland* or South Australia* or Tasmania* or Victoria* or Western or Australia*).mp. or (Scandinavia* or Denmark*or Dane* or Danish or Finland* or Finn* or Iceland* or Norw* or Swed*) .mp. or (Nordic* adj1 countr*).mp.</p>	<p>2820202</p>
<p># 6 - Qualitative Research Filter</p>	<p>Narration/ or Focus Groups/ exp Biography/ or exp Biographies as topic/ or Interviews as Topic/ or exp Qualitative Research/ or exp Community-Based Participatory Research/ or Cooperative Behavior/ or Case Reports/ or Organizational Case Studies/ or Observation/ or exp Anthropology, Cultural/ or Grounded Theory/ or (qualitative or ethno*OR emic or etic or Leininger or noblit or field note* or field record* or fieldnote* or field stud* or participant observ* or hermeneutic* or phenomenon* or lived experience* or Heidegger* or Husserl* or merleau-pont* or Colaizzi or Giorgi or Ricoeur or spiegelberg or van kaam or van manen or grounded theory* or constant compar* or theoretical sampl* or (Glaser and Strauss) or content analy* or thematic* or narrative* or unstructured category* or structured category* or interview* or maximum variation* or snowball or audio* or tape* or video* or purposive sampl* or action research or focus group* or photovoice or photovoice or case report* or case stud* or case history*or documentar* or discourse* or biograph* or autobiography* or</p>	<p>3839176</p>

	conversation* or active feedback).mp.	
Subtotal	#1 And #2 And #3 And #4 And #5 And #6	644
Total	With English language and year of publication restriction (2000-current)	488

1 Appendix II: Data extraction tool

Author(s):
Year:
Research purpose/question:
Type of research (design):
Participants: (profession, age, gender)
Where does the study take place? - Classroom - Rural environment
What are the educational strategies described in the study?
What is the goal of the educational strategy?
Is a theoretical approach stated? If so, what is it?
Are outcomes reported (findings)? If so, describe
All direct quotes related to outcome measure

2

3

4