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Rural physicians and social capital: the potential and promises of a rural health research capacity building program

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Abstract

Background Accessible and contextually relevant healthcare research programs and networks for rural physicians are exceedingly rare, which hinders the development of social capital in an already isolating profession. This study aims to examine the impact of the Rural Health Research Capacity Building (RRCB) Program on enhancing cognitive, structural, and relational social capital through comprehensive research skills training, supported by professional teams and resources.

Methods This study uses a mixed-methods approach with utilization of qualitative and quantitative data and pre-post quasi-experimental design. Data were collected prior and after completion of the program by means of surveys, focus group, and observation. Thirty-five rural physicians participated in this study from 2014 to 2021.

Results The results show a significant increase in cognitive (pre-program = 0.37 vs. post-program = 0.61, $p < .001$), structural (pre-program = 0.58 vs. post-program = 0.81, $p < .001$), and relational (pre-program = 0.49 vs. post-program 0.69, $p < .001$) components of social capital. Focus group discussions and observation data supported these findings, particularly highlighting that research capacity-building programs tailored to the needs of rural physicians can enhance collective values, improve the quality of relationships, and foster communities of research-focused practice.

Conclusions Being equipped with a shared system of meanings and interpretations, research knowledge and resources, and a professional research network appears to play a critical role in enhancing social capital in rural health research. The RRCB program effectively improves social capital among rural and remote physicians.

Keywords Rural Health Research Capacity Building (RRCB), Rural health research, *Rural360*, *6for6*, Social capital, Rural physicians

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Background

Rural health research is vital for developing evidence-based solutions to the complex health issues faced by rural communities. Rural Canada is characterized by its vast landscape, low population density and small communities far from urban centres. Rural Canada includes different types of settings, from the coastal villages of Newfoundland to the remote northern regions of the Yukon and Nunavut [4]. In Canada, rural areas face significant challenges, including demographic shifts, environmental degradation, and economic and social difficulties due to isolation, high unemployment rates, aging populations, and inadequate infrastructure. These factors contribute to poorer health outcomes, such as increased rates of heart disease, certain cancers, diabetes, respiratory illnesses, long-term disability, and reduced life expectancy. Compounding these issues is the insufficient healthcare infrastructure, marked by severe shortages of medical professionals and limited access to essential services [8]. Effective management of these challenges requires targeted research.

Despite the necessity of conducting rural health research, barriers to research engagement among rural and remote physicians—including lack of formal research training, time constraints due to clinical workloads, limited access to resources and support, and feelings of professional isolation—have been identified [2, 3]. Additionally, poor social capital often further hinders rural health research [8, 10, 14]). It is evident from the stark rural–urban disparity in the available literature that poor social capital has an impact on the number and quality of the studies conducted in rural settings.

The heart of social capital theory lies in the concept that networks of relationships provide a collective benefit to their members. Social capital provides a shared sense of connection and resources within a network, and thus, a larger network will allow access to a greater variety of contacts, support, and knowledge. Social capital is multifaceted and is described in terms of three dimensions: cognitive, structural, and relational [15].

Cognitive social capital refers to a shared understanding of a vision, goal, or reality among people [15], for example, the extent of unity between physicians' purpose for conducting research. Cognitive social capital is further divided into three sub-components: (1) Collective knowledge of research concepts (i.e., the extent to which research knowledge is accessible); (2) Shared attitude toward conducting research (i.e., the sense that research is feasible and beneficial); and (3) Shared norms and values (i.e., feeling 'on the same page' with colleagues in terms of research process) [15]. Structural social capital refers to the presence of a network, or structure, to access resources and connections [16], such as rural physician-researchers exchanging academic knowledge. Relational social capital refers to the nature and quality of relationships and involves trust [17], norms [18], obligations [18], and identity [19].

The role of Rural Health Research Capacity Building (RRCB) programs in addressing rural health concerns cannot be overstated. It is well known that rural physicians are in an optimal position to conduct locally relevant research within their communities but often lack the required skills and resources [11]. Dedicated RRCB programs aim to alleviate barriers to research by increasing rural physicians' social capital. Increased social capital equips rural physicians with the confidence to investigate issues within their communities and build interdisciplinary teams to find contextually-relevant solutions, overall resulting in improved patient health outcomes. Rural health research capacity is largely reliant on the implementation and accessibility of targeted research training programs that enhance social capital. However, RRCB programs are exceptionally rare and are plagued by issues such as limited funding and insufficient institutional support [20]. Our team at Memorial University of Newfoundland, Canada, has faced these challenges head-on to implement an RRCB ecosystem comprising two intertwined programs: *6for6* and *Rural360.*

6for6 is a research skills development program tailored to rural and remote physicians. The program has two phases: phase one (one-year training) consists of both synchronous (instructor-led) and asynchronous (self-paced) content, while phase two (the 'development' year) provides alumni with continuous research support and networking to complete their projects. Six rural physicians are selected biannually to complete the program, where they learn fundamental research skills and conceptualize a project relevant to their communities [3, 13, 14, 21]. Physicians are selected for the *6for6* programs through a combination of criteria and processes. Priority is given to rural physicians working in Newfoundland and Labrador and in jurisdictions associated with Memorial University, including Newfoundland and Labrador, Nunavut, New Brunswick, and Prince Edward Island. Participants come from various age groups, ranging from early-career physicians to those with more established careers. Eligible candidates must have worked in rural areas for a minimum of one year, but no previous research experience is required. A unique feature of the 6for6 program is its lifetime membership, which allows participants to continue accessing the program's resources, mentorship, and network long after the initial training period.

The *6for6* program employs various strategies to address rural research capacity, such as prioritizing studies based on local health needs, recognizing existing

research capacity, fostering connections between rural physicians and research groups, and ensuring results are translated back to local communities. To date, the *6for6* program has trained 35 rural physicians to become junior researchers and anecdotal evidence suggests that a robust community of research practice is forming among them [14].

Rural360 is a rural health research "incubator" developed as an extension of the *6for6* program. Its purpose is to facilitate access to resources (funding, feedback on proposals, collaboration with experts) that assist rural physicians to overcome barriers to conducting rural research. *Rural360* during 2017 and 2022 had funding to support research projects in Northern Newfoundland and coastal Labrador. *Rural360* is designed to link directly with *6for6*, which catalyzes the research proposals developed during *6for6* into fully realized projects. To our knowledge, *Rural360* is the first university-based program of its kind to forge faculty-rural physician research partnerships that address healthcare issues [12]. Together, *6for6* and *Rural360* have led rural physicians to conduct work that has significantly impacted their communities..

The value of rural research programs lies in their ability to leverage the unique insights and experiences of rural physicians who are deeply embedded in their communities. This hands-on knowledge enables the development of community-based, innovative, and evidence-informed strategies tailored to address local health issues effectively. Research indicates that studies are most impactful when they involve not only service users and policymakers but also practitioners who are directly engaged with the community [9, 14, 21–24].

The *6for6* and *Rural360* programs are designed to address the unique challenges faced by rural physicians through enhancing research capacity and social capital. Although both programs aim to tackle issues encountered in rural and remote communities, this study focuses solely on the *6for6* program and its impact on participants' social capital, excluding the *Rural360* program from its results. This study aims to assess the impact of the program on social capital among rural physicians using a mixed-methods approach.

Methods

Study design

This study employed a mixed-methods quasi-experimental design, utilizing pre- and post-program data collection to evaluate changes in social capital components before and after participation in the *6for6* program. The analysis specifically focused on the impact of the *6for6* program on enhancing social capital in rural settings. Although the term RRCB is broader and includes both the *6for6* and *Rural360* programs, this study concentrated solely on assessing the effects of the *6for6* program.

Data collection and analysis

This study utilized a pre-post program survey, post-program focus group, and structured observations to boost the validity and dependability of data collection. Pre-post program surveys were conducted online, with the pre-program survey completed at zero months and the post-program survey at 12 months. The pre-program data established a baseline measure of the physicians' social capital, while the post-program data assessed the impact of the *6for6* RRCB program on social capital.

From 2014 to 2021, we offered the *6for6* program to six different groups of rural physicians. Each group began the program in April and graduated the following April, with the program duration being one year. For this study, we used to Statistics Canada's definition of rural and small towns [1]. Participants were also selected based on their self-identification as rural physicians.

All participants completed surveys within one month before starting and within one month after finishing the program. To improve the response rate, we sent an initial email with a survey link to all participants, followed by three reminder emails over the course of 7 days.

The online self-administered survey was developed utilizing a modified Delphi approach. First of all, candidate categories and relevant questions were identified by the researchers based on literature review, brainstorming, group discussion, and objectives of the RRCB. Second, the initial version of the questionnaire was piloted to explore weaknesses and strengths. Third, after one round of piloting, the researchers revised and refined the questions. A t-test was conducted to determine the effect of RRCB on social capital. Although the sample size was small, all participants answered the questions, and we did not encounter any missing data or outliers. The t-tests were conducted under the assumptions of normality, homogeneity of variance, and independence of observations.

We conducted post-program focus groups annually at the end of the training program. From 2014 to 2021, six focus groups were held, all of which were audio recorded and transcribed verbatim. All focus groups were administered in-person, except during the Covid-19 pandemic in 2020–2021, which was conducted via Zoom. The focus groups were facilitated by two external researchers experienced in qualitative studies to ensure an unbiased and neutral atmosphere.

The survey and focus group discussions assessed various aspects across the three dimensions of social capital: bonding, bridging, and linking. Each dimension included

a range of questions designed to understand the relationships, networks, and connections that physicians in rural areas build and maintain through their participation in the program. Moderators also asked additional and follow-up questions as needed during the discussions.

Extracted data from focus groups were supplemented with structured observation data, which served as auxiliary and confirmatory. The structured observation data included field notes, meeting minutes which address barriers and enablers experienced by the researchers, mentors, instructors and participants and recommended or observed strategies to encourage, motivate the participants and improve the program. Data from the focus group and observation were coded and thematically analyzed. We performed the inductive thematic analysis following the six steps proposed by Braun & Clarke (2021): first, we familiarized ourselves with the data; next, we created initial codes; then, we identified potential themes; followed by refining those themes; defining and labeling the final themes; and, finally, writing the report. We cross-validated and triangulated the findings from surveys with focus groups and observations.

Results

During the 6-year study period, between 2014 and 2021, 35 rural physicians participated in the rural health research capacity-building. Approximately 62.8% were women, and 80% were family physicians. Participants in the program span a wide age range, from those new to practice to seasoned physicians with many years of experience. This diversity enriched the program by bringing together physicians with varying perspectives, motivations, and levels of experience in learning new skills and engaging in research.

Cognitive social capital

There was a significant difference between the cognitive social capital scores of the participants before attending the program (M = 0.37, SD = 0.13) and after the program (M = 0.61, SD = 0.27) (Fig. 1). Figure 2 shows the average score for the three sub-components of cognitive social capital among rural physicians before and after the program. The pre-program results for collective knowledge of research concepts (M = 0.41, SD = 0.14), shared attitudes toward conducting research (M = 0.52, SD = 0.25), and shared norms and values (M = 0.79, SD = 0.24), increased significantly (M = 0.68, SD = 0.27, $p < 0.001$), (M = 0.70, SD = 0.32, $p < 0.001$), and (M = 0.94, SD = 0.07, $p < 0.001$) (see Fig. 2).

The pre-program results for collective knowledge of research concepts (M = 0.41, SD = 0.14) increased significantly (M = 0.68, SD = 0.27, $p < 0.001$). (see Fig. 2). The participants' narratives and observation notes contained various references to the effect of the RRCB on expanding research knowledge. According to the data extracted from observation and focus group, the RRCB pathway provided rural physicians with a shared system of meanings and interpretations that facilitate research. The participants are equipped with the shared language, codes, vocabulary, and narratives required to communicate

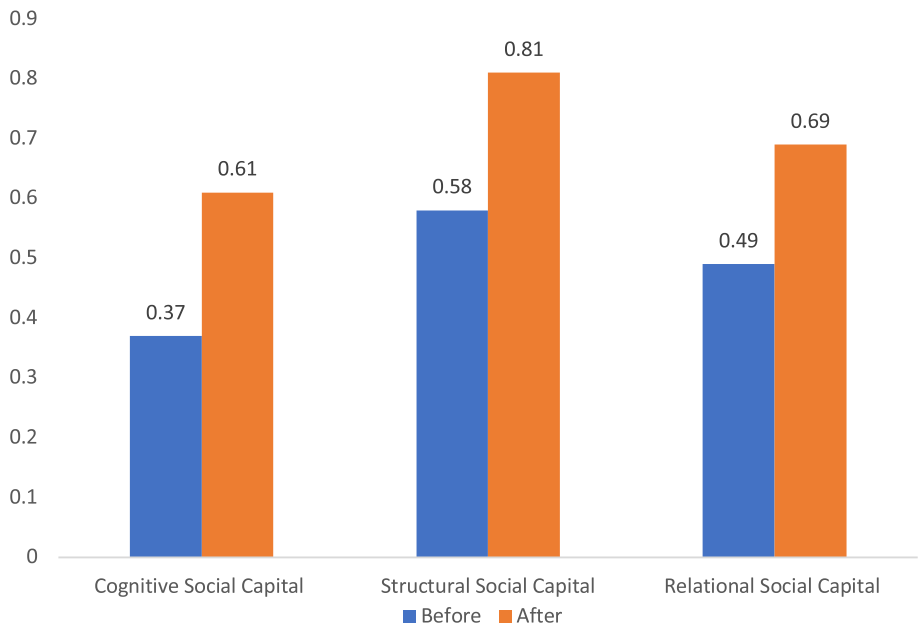

Fig. 1 Dimensions of Social Capital Before and After Research Capacity Building Programs ($n = 35$, $p < 0.001$)

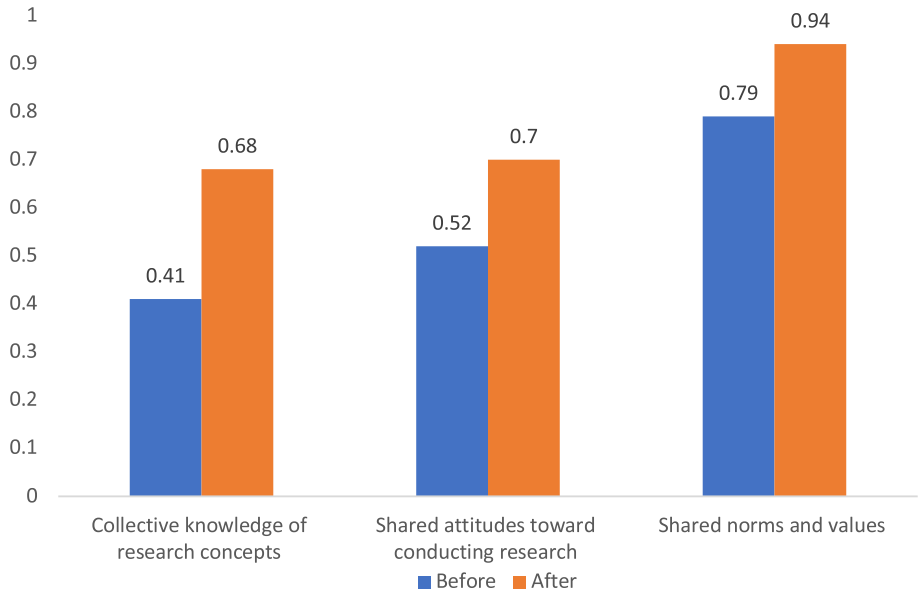

Fig. 2 Cognitive Social Capital Components Before and After Research Capacity Building Programs ($n = 35$, $p < 0.001$)

and conduct academic research. Almost all participants believe that the program fills a gap that has long existed in clinician practice, including a lack of knowledge related to research skills and tools, which make the pathway to conduct research blurred and, in some cases, even intimidating. However, attending the *6for6* program as a "crash course" makes research a more feasible and practical skill that fits physicians' busy lifestyles. It provides them with a unique opportunity to become familiarized with an introduction to research to incorporate it into their daily life as a physician. According to interlocutors, the program gathered together "like-minded individuals" and surrounded them with six intense comprehensive sessions to cover multiple aspects of research skills.

> *"I'm more familiar with the lingo now, so I don't necessarily… Wouldn't say that I'm an expert in mixed methods or, you know, quantitative, qualitative, or all the other topics we talked about. I'm not… But at least I know the lingo. When somebody says something about rural proofing, I know what that means now, you know, I have a general idea what that means. I know the lingo. So, that was very, very valuable. So, I think that… And… So, that helps me, um… Think about research or understand research".*

As conducting research has not been a part of clinician practice for most of the attendees, it was believed that the *6for6* program allowed them to become familiar with a "whole new world," "opened up opportunities," and "opened the door to making research possible," was "like a "roadmap," shed light on research from different angles, "tracking way out of the shell," and helped them do "something outside of just clinical practice."

> *"It was really never part of my practice, or work in really in any way; other than like years ago, doing my resident project but so it just has opened up opportunities. I think, in that sense, and maybe kind of made me sort of look at research differently and I guess kind of respect the process, probably more now that I understand a little bit more"*

Lessons learned from the pathway may also create opportunities for more robust knowledge translation among and advocacy by participating rural physicians.

> *"Policies are not made by us and this also I see it as an opportunity to somehow convince the policy makers that what we are saying or doing, what we want to do is make sense as well. I feel and the physicians feel that they listen to us but nothing gets done about it. Even in the rural communities, policies are made which are counterproductive and then we have our say in it but it never gets implemented, so this might be an opportunity to give us voice and seeing so many of us doing the same thing eventually it will form a community that wants to make a change in that way and have a voice, better voice, stronger voice maybe."*

The program provided knowledge, a framework, skills, and an "ongoing writing accountability group," which significantly expanded the attendees' research language and vocabulary and improved their scholarly writing.

"But now, I'm starting to and it's interesting and so, that's like a new skill set or vocabulary or language. And then the last piece that was like really big for me, and it was totally unexpected because I didn't think that writing was an objective of mine. It happened to be another, you know, the other course but we ended up yeah, I mean you know, some academic writing again"

The pre-program results for shared attitudes toward conducting research (M = 0.52, SD = 0.25) increased significantly (M = 0.70, SD = 0.32, $p < 0.001$) (see Fig. 2). Many participants initially struggled with limited knowledge of tools, resources, and academic terminology, which impeded their ability to effectively communicate their ideas to policymakers and drive community change. One participant highlighted how developing new skills, and knowledge significantly transformed their professional practice. The participant demonstrated a shift from a reactive approach, characterized by complaints and frustration, to a structured and mindful strategy for influencing change. This evolution underscores the importance of capacity-building programs, which provide professionals with the tools and understanding necessary for implementing effective and systematic changes in their practice and community.

"We're generalists and we're in a great position, and we're connected to the community and stuff but I've never had the language or muscles to use that position to start influencing change in a mindful way. I've done a lot of yelling and screaming and complaining not realizing how this great big monster machine actually is working. And now I can't imagine not incorporating this into my daily activities, monthly activities where I would say to my colleagues, you know, every second Friday I don't see patients but I work for the patients and the community by doing this stuff and getting better at it."

The pre-program results for shared norms and values (M = 0.79, SD = 0.24) increased significantly (M = 0.94, SD = 0.07, $p < 0.001$) (see Fig. 2). Participants felt that the pathway had equipped them with shared values, perceptions, interpretations, paradigms, goals, visions, and systems of meaning necessary to foster change in rural areas. This underscores how the program not only helped participants understand the significance of their research but also maintained their motivation through accountability mechanisms.

"Knowing the impact that you can have by providing [rural research findings] to policy makers… they do want to hear from you… they do see you as an expert [sic] in [rural medicine]. [6for6] has held me accountable; like being busy over time you can easily just lose interest and just put [your research] aside and it would collect dust but now I feel accountable to the mentors and to the group to just get this done."

Structural social capital

The focus group discussions also suggest that structural social capital has been enhanced. After attending the program, attendees indicated they had gained adequate knowledge to effectively build a team, cultivate professional research networks and connections, and collaborate with researchers, facilitators, mentors, librarians, colleagues, and program coordinators to conduct research. The structural dimension score increased significantly from pre- (M = 0.58, SD = 0.16) to post-program (M = 0.81, SD = 0.14, $p < 0.001$) (see Fig. 1). Conducting research has always been a "black box" that provides "missing key pieces" to the participants; however, the RRCB not only developed their research skills but also expanded their knowledge regarding the research procedure and available research networks. The primary barrier for those practicing in rural areas is the lack of connection and networking within a supportive research system. This program has offered participants a network that would otherwise be inaccessible. Participants felt they faced various challenges at all stages of research, but believed these difficulties could be addressed with the support provided by the *6for6* research team.

"You don't know who you should be talking to or what people can offer, what's being done, who's doing what, and how people are engaged in the kind of thing you may want to be engaged in as well. Um… So, I think just that chance to Figure out the networks of research that happen in this province has been very helpful."

Furthermore, being a part of a research group or a collaborator increased participants' confidence, expanded their research knowledge, and gave them a feeling of "being part of that community." Participants expressed that knowledge exchange was also bolstered by the program through an expanded network and more numerous connections.

"I've lived in rural and remote communities for most of my career, right? And so, how to connect was my main preoccupation; I felt like the biggest barrier and I feel like that barrier is gone now. Right, so it's not necessarily skills but it's like plugging in and knowing who to ask and how to find them in the end and just feeling like there are fewer barrier."

Even in the virtual format during the COVID-19 pandemic, participants greatly appreciated the team

members' effective engagement, cooperation, connections, communication, and teamwork. Having peer-to-peer and mentor-participant support, feedback, and communication has been a road map for the attendees. The learning between members of the group is not only restricted to the program principles, as it also touches on the participants' daily life and how to manage and balance professional obligations, home-related responsibilities, and program commitments, particularly in an online delivery model.

> *"The group we have was great and the peer support and feedback and the different perspectives, I thought was super helpful"*
> *"We're all in fairly similar situations we have busy clinical work and family life and otherwise, so you know, knowing that we're all sort of trying to balance it all and learn from each other has been really great."*

Relational social capital

The most immediate impact of the RRCB was on participants' relational development. As Fig. 1 demonstrates, relational social capital increased from pre- (M = 0.49, SD = 0.20) to post-program (M = 0.69, SD = 0.27, $p < 0.001$) (see Fig. 1). Participants reported that their ability to select appropriate team members to supplement their research competencies improved. Additionally, they were able to formalize appropriate relationships to advance research within and outside of their region. Moreover, they gained the ability to communicate their research knowledge and experiences with other network members. The quality of relationships among rural physicians and their professional research networks was evident through discussion themes such as friendship, respect, shared group norms, and trust. The participants' willingness to prioritize collective goals over individual interests was also clearly palpable in these relationships. According to the participants:

> *"I'd like someone to help me do it when I need to do it, but I also think that I've garnered through this process, garnered that appreciation for what I can realistically contribute to research at this point. And I think one of the good things about building a network is that we are getting towards a practical solution for some of these things. Like, we might be getting some students to help us do some of this stuff, and how you use those teams to then grab that support in place."*

While one might assume that the virtual model may directly weaken team members' support and communication, participants have been extremely satisfied with the virtual delivery format which allows them to stay connected with colleagues in a similar situation.

> *"And I was like quite surprised right off the bat at the intimacy that the virtual still allowed us, you know."*
> *"I found it's so nice to connect with other people who normally wouldn't necessarily, you know. We're all in fairly similar situations"*

Discussion

There is a dearth of literature examining the contribution of RRCB programs as a crucial driver in enhancing social capital. This study evaluated the impact of an RRCB program pathway tailored to rural health needs to improve rural physicians' social capital. All three dimensions of social capital increased significantly over the study period, indicating that the research capacity-building programs such as *6for6*, foster collective values, quality relationships, and communities of practice among research-focused physicians. Empowering rural physicians to engage in research that is relevant to their communities not only builds research capacity (i.e., knowledge, attitudes, and skills) and research productivity (i.e., publications, presentations), but also cultivates professional research networks, further enhancing social capital [7, 10, 12]. The *6for6* program success is a testament to RRCB programs' value in building social capital.

The two-way arrows in (Fig. 3) illustrate the dynamic and reciprocal relationships between the different stages of the program. The first arrow shows how acquiring research skills, engaging in networking, and accessing mentorship (Learning) leads to enhanced collective knowledge and professional connections (Impact). This, in turn, supports the practical application of these insights by providing access to resources such as funding and expert collaboration (Doing). Finally, the resources and practical experiences gained (Doing) contribute back to the learning process, enriching the development of research skills and expanding networking opportunities. This feedback loop highlights the interconnected nature of learning, impact, and practical application in enhancing research capacity.

The results of this study align with research identifying education as a predictor of social capital at both individual and community levels [25–33]. It is well established that training, mentorship, and networking can effectively develop healthcare providers' research skills and knowledge [23, 34–37]. The study's findings on enhancing cognitive social capital are consistent with those reported by previous scholars.

In rural contexts, the specific challenges faced by physicians, such as professional isolation and limited resources, make the enhancement of social capital

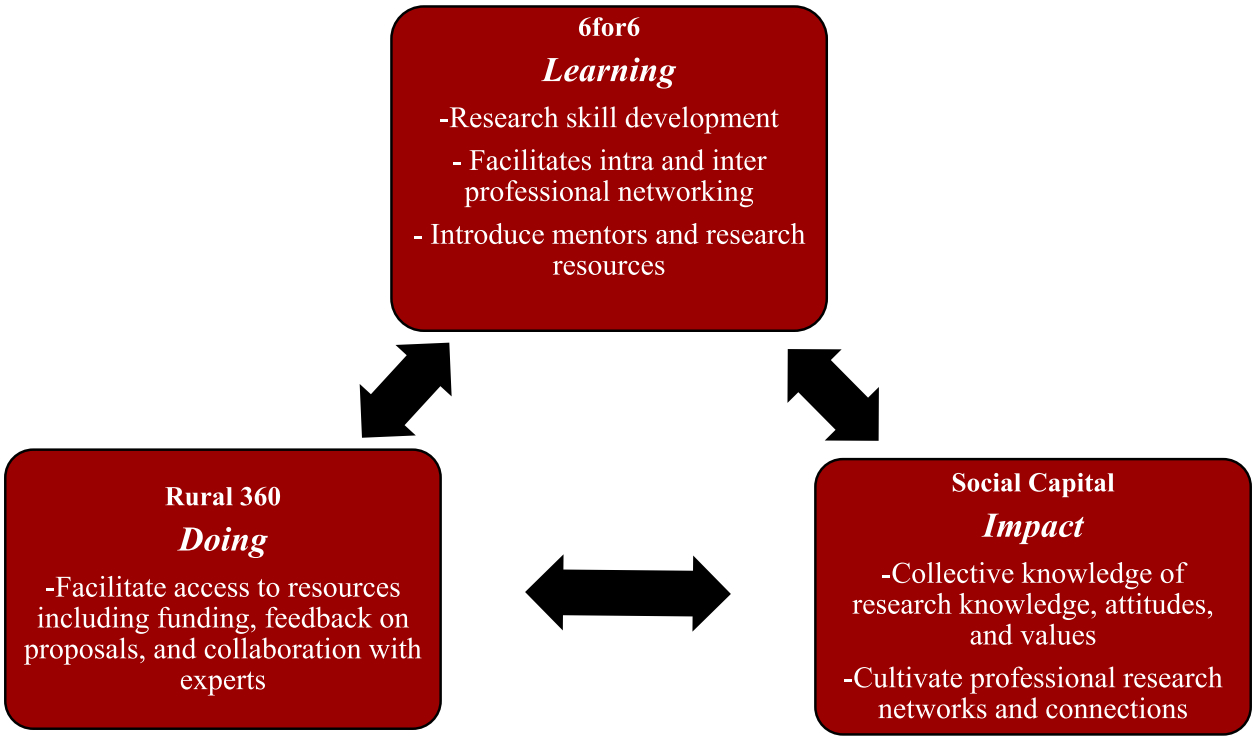

Fig. 3 Rural Research Capacity Building Pathway toward Enhancing Social Capital

particularly crucial. The *6for6* program addresses these challenges by fostering connections that can lead to improved healthcare delivery in rural communities.

The essential components of RRCB programs include building networks, connections, and collaborations [34, 38]. The significant community-based and interdisciplinary work undertaken by *6for6* and *Rural360* alumni demonstrates that these programs are successfully achieving their goals. Collaborations and partnerships lead toward enhancing social capital (relationships) and intellectual capital (knowledge) [34, 39]. In other words, forming connections between various groups and individuals increases the chance of knowledge exchange. It is well-documented that there are interrelationships between social capital and intellectual capital [15], which refers to the skills and knowledge that permit innovative thinking and novel actions [40]. It is also evident that training aimed toward research skills development significantly increases the rates of research activities and the level of passion for conducting research [41, 42]. The RRCB program pathway has a crucial impact on research knowledge, attitudes, and awareness of rural physicians and has a significant outcome on their research productivity rates (e.g., conference presentations, grant applications, and publications). Although rural physicians return to their busy practices and continue to face challenges in conducting rural studies after completing the program, *6for6* and *Rural360* team members persist in providing post-program professional research support.

By offering continued support, rural physicians are able to maintain their research efforts even after the formal RRCB program has concluded. For instance, team members from *6for6* and *Rural360* provide guidance on research formulation, execution, and publication, assist with university research services (such as library and ethics office support), and help secure funding to enable rural physicians to complete their projects [3, 5–7, 12, 21]. The *6for6* and *Rural360* research capacity-building programs enhance research competency, productivity, and access to support systems and resources, such as funding, expertise, and mentorship [14, 21]. Rural physicians participating in these programs can leverage these resources—often limited or absent in rural communities—to develop their research skills, stay informed about research opportunities, build essential social connections, and consequently increase their social capital.

Future research should explore the differences in the effectiveness of RRCB programs between rural and urban contexts, identifying best practices that can be adapted to each setting. This could further illuminate the distinct needs and contributions of healthcare providers across diverse geographic landscapes.

Future research

This study examines the impact of *6for6* research capacity-building programs on social capital. The most important next step for future research is to examine the outcomes, including rural health improvements of individuals and families, community benefits, quality of health services, organizational changes, and workplace development [23, 43].

Limitations

The present study has several limitations. Firstly, it is based on an RRCB program pathway developed by a single university, which limits the generalizability of the findings. The limited geographic scope of the study may also restrict the applicability of the findings to broader contexts. To gain a comprehensive understanding of the impact of the intervention on improving social capital among physicians in rural and remote areas, a comparative study of RRCB programs across multiple universities and regions is needed.

Additionally, a longitudinal design and systematic financial support for potential research proposals by attendees would enhance the robustness of the findings.

Moreover, the post-program survey was administered within one month of completing the research capacity-building program pathway. An appropriate time frame should be considered to effectively assess and detect the long-term impacts of the program.

Furthermore, we lack data beyond the initial evaluation of the *6for6* program, which primarily focused on building research capacity and fostering social capital among rural physicians. Another limitation is the potential biases inherent in self-reported data, which could affect the reliability of the results. Future studies could explore diverse dimensions of the program's impact within communities and examine potential policy changes.

The small sample size of this study is another limitation, as it may affect the robustness of the statistical analyses. With a limited number of participants, it becomes harder to detect significant effects if they exist. Additionally, it could increase the risk of errors in the analysis. Future studies with larger sample size are needed to confirm these findings and to further represent the impact of the *6for6* program on social capital.

Conclusion

It is evident that organized pathways for research capacity building have the potential to enhance social capital. The findings of this study indicate that the *6for6* RRCB program pathway significantly improved rural physicians' social capital, both overall and across the structural, relational, and cognitive components and sub-components of the construct. Dedicated rural health research pathways may be the key to improving patient care in rural communities by building networks of rural practitioners with strong social capital [21].

Abbreviation

RRCB Rural Health Research Capacity Building

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Authors' contributions

All authors contributed to the study design and conceptualization of this paper. NA, AT, and SA drafted the manuscript. All authors significantly contributed to the revision of the manuscript, provided feedback, and approved the final version for submission.

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Data availability

No datasets were generated or analysed during the current study.

Declarations

Ethics approval and consent to participate

All research was performed in accordance with the Declaration of Helsinki. All methods were carried out in accordance with relevant guidelines and regulations. The study was approved by the provincial Health Research Ethics Board and informed consent was obtained from all participants prior to study start.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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