BMC Primary Care

RESEARCH

Open Access

Evolution of the roles of family physicians through collaboration with rehabilitation therapists in rural community hospitals: a grounded theory approach

Ryuichi Ohta[1*], Kentaro Yoshioka[1] and Chiaki Sano[2]

Abstract

Background The role of rural family physicians continues to evolve to accommodate the comprehensive care needs of aging societies. For older individuals in rural areas, rehabilitation is vital to ensure that they can continue to perform activities of daily living. In this population, a smooth discharge following periods of hospitalization is essential and requires management of multimorbidity, and rehabilitation therapists may require support from family physicians to achieve optimal outcomes. Therefore, this study aimed to investigate changes in the roles of rural family physicians in patient rehabilitation.

Methods An ethnographic analysis was conducted with rural family physicians and rehabilitation therapists at a rural Japanese hospital. A constructivist grounded theory approach was applied as a qualitative research method. Data were collected from the participants via field notes and semi-structured interviews.

Results Using a grounded theory approach, the following three themes were developed regarding the establishment of effective interprofessional collaboration between family physicians and therapists in the rehabilitation of older patients in rural communities: 1) establishment of mutual understanding and the perception of psychological safety; 2) improvement of relationships between healthcare professionals and their patients; and 3) creation of new roles in rural family medicine to meet evolving needs.

Conclusion Ensuring continual dialogue between family medicine and rehabilitation departments helped to establish understanding, enhance knowledge, and heighten mutual respect among healthcare workers, making the work more enjoyable. Continuous collaboration between departments also improved relationships between professionals and their patients, establishing trust in collaborative treatment paradigms and supporting patient-centered approaches to family medicine. Within this framework, understanding the capabilities of family physicians can lead to the establishment of new roles for them in rural hospitals. Family medicine plays a vital role in geriatric care in community hospitals, especially in rural primary care settings. The role of family medicine in hospitals should be investigated in other settings to improve geriatric care and promote mutual learning and improvement among healthcare professionals.

*Correspondence:
Ryuichi Ohta
ryuichiohta0120@gmail.com
Full list of author information is available at the end of the article

© The Author(s) 2024. **Open Access** This article is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License, which permits any non-commercial use, sharing, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if you modified the licensed material. You do not have permission under this licence to share adapted material derived from this article or parts of it. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by-nc-nd/4.0/.

Keywords Rural setting, Family medicine, Rehabilitation, Interprofessional collaboration, Joy, Psychological safety, Patient-centered care

Background

Family physicians specialize in the comprehensive management of patients as system-specific specialists and deal with multiple biopsychosocial problems, particularly among older adults [1, 2]. However, the role of rural family physicians must evolve to meet the comprehensive care needs of aging societies. Insufficient mental and physical exercise and support can lead to frailty in older individuals. Therefore, family physicians must consider the equilibrium between mental and physical conditions and collaborate with rehabilitation professionals to enhance patients' mental and physical abilities [3, 4]. Interprofessional collaboration (IPC) between rehabilitation professionals and family physicians must be promoted to meet the needs of aging societies, particularly in rural areas [5, 6] to sustain patients' ability to perform activities of daily living (ADL) in their homes.

Several challenges exist, however, in this population. For example, older patients tend to have multiple chronic diseases and are more vulnerable than younger people to various acute diseases [7]. Ambulatory care-sensitive conditions are also more common and are associated with a high risk of acute admission [8, 9]. Upon admission to medical institutions, rehabilitation of patients is essential to support the physical and cognitive functions required for their ADL post-discharge [10, 11]. Effective rehabilitation in the hospital can sustain older patients' ADL and ease the transition back into the community [12]; however, this is dependent on IPC among healthcare professionals, and management of multimorbidity by a family physician is essential to prevent complications and promote effective rehabilitation [13]. Admitted older patients tend to have multimorbid conditions requiring polypharmacy, and they can develop various medical problems [14]; therefore, organ-specific specialists may be unable to effectively manage such patients [2]. However, family physicians, as system-specific specialists, *can* manage multimorbidity effectively [15]. Thus, family physicians play an essential role in the effective coordination of the discharge of older patients and should collaborate with rehabilitation professionals to promote recovery.

To improve rural rehabilitation, additional involvement of family medicine physicians may be necessary. Rehabilitation of older patients requires continual assessment of their medical condition, as their status can frequently change due to multimorbidity and alterations in physical and cognitive function dictated by the clinical course of the disease [5]. Although rehabilitation specialists are capable of comprehensively managing patients' conditions, the number of rehabilitation specialists is limited in rural settings, and hospital-based family physicians are mainly responsible for managing systemic changes in admitted older patients [16]. While IPC between therapists and family physicians is essential for effective rehabilitation of this population, no in-depth studies have been conducted to determine the essential factors for optimizing the outcomes of this type of collaboration, especially in rural contexts [17]. Identifying the ideal means of collaboration could improve rural rehabilitation and the quality of care these patients receive.

Participatory research involving a grounded theory approach could help identify factors for promoting IPC [18]. In such an approach, researchers and participants collaborate in the methodology to solve specific issues or improve working conditions, describe related processes, and establish theories that could lead to solutions and improvements [18, 19]. Therefore, this study adopted a grounded theory approach to clarify the process and establish effective rural IPC between family physicians and therapists in the rehabilitation of older patients.

Methods

Setting

Unnan City, located southeast of an administrative unit in a rural setting, is one of Japan's smallest and most remote cities. In 2020, the total population of the city was 37,637 (18,145 males and 19,492 females), 39% of whom were over 65 years of age; however, this proportion is expected to reach 50% by 2025. Unnan City has 16 clinics, 12 home care stations, three visiting nursing stations, and only a single public hospital. At the time of the study, Unnan City Hospital had 281 care beds, including 160 acute care, 43 comprehensive care, 30 rehabilitation, and 48 chronic care beds, with nurse-to-patient ratios of 1:10, 1:13, 1:15, and 1:25, respectively. The hospital employed 27 physicians, one dentist, 197 nurses, seven pharmacists, 15 clinical technicians, 37 therapists, four nutritionists, and 34 clerks [3].

The family medicine department of Unnan City Hospital mainly cares for internal medicine patients in the inpatient and outpatient departments, and the staff mainly comprises family medicine specialists and trainees. The department trains medical residents using an educational curriculum based on that of the Japanese Primary Care Association's Board of Family Medicine, developed in accordance with the World Standard of

Education of Family Medicine. During the study period, three medical educators specialized in family medicine, and this curriculum could be used to educate a maximum of three residents simultaneously. The curriculum was used to train one resident in 2018, one in 2019, and three, three, and three in 2020, 2021, and 2022, respectively. In 2022 and 2023, the Department of Family Medicine comprised two family physicians and eight family medicine residents. This department promotes IPC between the hospital's dentists, pharmacists, therapists, nurses, and nutritionists, and their continuous collaboration has led to an improvement in the readmission rate among older, admitted patients [3].

Initiation of interprofessional collaboration (IPC) between family physicians and rehabilitation therapists

Due to the effects of multimorbidity on patient discharge and the lack of information exchange between physicians and physical and occupational therapists, an IPC initiative was established on April 1, 2021, between the Department of Family Medicine and the Department of Rehabilitation of Unnan City Hospital to improve rehabilitation outcomes. Family physicians and therapists discussed their patients from each other's perspectives and shared ideas for improving the care of hospitalized patients and their discharge plans. Discussions were conducted once a week at an interdisciplinary conference between the two departments, as previously described [3]. Physicians presented information on the conditions of their patients from a medical perspective, including specific symptoms and the clinical findings supporting the diagnosis, treatment plan, and predictions on the clinical course. Therapists shared their plans for the rehabilitation of patients based on the physicians' diagnoses, discussing specific points and outcomes with the physicians that could lead to a shift in the rehabilitation strategy, such as changes in symptoms and vital signs.

Patients' discharge plans were also discussed. These conferences ensured that the physicians understood when patients could be expected to satisfy the physical and mental criteria required for discharge based on the rehabilitation plan. The conferences also ensured that the therapists understood the physicians' treatment goals and expectations for rehabilitation, facilitating the appropriate recovery of each patient.

Participants

To clarify the theory of the collaboration between family medicine and rehabilitation units, we iteratively collected all medical professionals involved in rehabilitation in the hospital for theoretical sampling. All members of the family medicine and rehabilitation departments of Unnan City Hospital participated in this study, including ten family medicine physicians and 37 rehabilitation therapists. All participants received information about the study and provided written informed consent for inclusion. The Unnan City Hospital Clinical Ethics Committee approved the study protocol (No. 20220002).

Ethnography

An ethnographic approach was adopted in this study. Two researchers (RO and KY) acted as participatory investigators. All participants were informed about the purpose of the study, and written consent was obtained before observation. RO worked in all of the hospital wards, observed the interactions between medical students, junior residents, family medicine residents, and rehabilitation therapists in each ward and during the conferences, and recorded observations in the form of field notes. KY communicated with other rehabilitation therapists regarding the collaboration between the family medicine and rehabilitation departments and investigated the daily successes and difficulties they encountered.

Once a week, RO and KY discussed the ongoing collaboration between the family medicine and rehabilitation departments. RO reviewed the field notes describing the advantages and disadvantages of the collaboration and inquired whether TK had discussed them in his dialogue with the participants. Moreover, these weekly discussions allowed RO and KY to share their perceptions of the collaboration between the two departments; more specifically, they reflected on their observations and discussed their ideas pertaining to changes in the collaboration and their effectiveness. RO recorded the most profound observations from the discussions and semi-structured interviews.

Semi-structured interviews

RO interviewed all participants in the hospital conference rooms. The interview guide included the following three questions: "What do you think of the ongoing collaboration between family medicine and rehabilitation?"; "What difficulties do you perceive in the collaboration between family medicine and rehabilitation?"; and "Do you have any ideas on how to improve the collaboration between family medicine and rehabilitation?"(Appendix) During each interview, RO reviewed the field and discussion notes and inquired about any changes in the collaboration between the family medicine and rehabilitation departments. Each interview lasted approximately 42–61 min and was recorded and transcribed verbatim. After each interview, RO and KY discussed the effectiveness, perceived difficulties, and changes made to the collaboration between the two departments.

Analysis

A grounded theory approach was adopted in this study, as previously described [20]. After reading the contents of the field notes, conducting the semi-structured in-depth interviews, and holding discussions with KY, RO coded the content and developed codebooks based on repeated reviews of the field notes for initial coding for reliability. The process and concept coding methods were based on previously established methodology [19].

For the data collection and analysis spiral, RO and KY engaged in cycles for data collection, coding, memo-writing, further data collection, and analysis. Initial coding was followed by constant comparative analysis, in which data from new interviews were compared with existing data to refine codes and categories. Questions posed to participants evolved based on ongoing analysis, ensuring that they were grounded in the data. RO and KY used constant comparative analysis, a hallmark of grounded theory, to compare data across participants and further develop categories and dimensions. This process was evident in the methods as we continuously compared new data with existing categories to refine and densify our theoretical constructs. Theoretical sampling was employed to guide data collection based on emerging analysis. As new concepts and categories emerged, we identified specific groups of participants for inclusion, ensuring that the data were robust and comprehensive. This included asking another participant to fill in gaps identified during analysis and revisiting data to verify the presence of emerging concepts. The sample size was determined based on theoretical saturation [20]. Data collection continued until no new properties of the categories emerged, ensuring that the categories were fully developed and saturated. Eventually, all participants were interviewed iteratively and after 44 interviews, theoretical saturation was reached. The results generated three core themes that contributed to the development of a substantive theory [20].

The conceptual underpinning of this study was Symbolic Interactionism (SI), which guided our data collection, sampling, and analysis. SI principles were applied to understand the interactions and meanings constructed by participants' responses, aligning our approach with grounded theory methodology. For triangulation, RO and KY continuously discussed the concepts and themes throughout the duration of the study. The content of the interviews was analyzed iteratively, and theoretical sampling was based on the evolving analysis to ensure theoretical saturation. Finally, the three team members (RO, KY, and CS) discussed the information and agreed on the final themes, ensuring the trustworthiness of the results.

Reflexivity

This study's results were determined based on interactions between both the researchers and the participants. The members of the research team possessed diverse expertise and perspectives on rural medical education. RO, a family physician and medical teacher, graduated with a master's degree in medical education and family medicine and has experience working, providing education, and conducting research in rural contexts. KY, a hospital rehabilitation therapist, has experience working at a rural hospital, where he managed the rehabilitation department. CS, a medical educator and professor at a medical university, graduated from a medical university and specializes in community healthcare management and education. To minimize potential bias, the research team exercised caution when discussing the findings of individual data analyses. Alternative viewpoints were explored when inferring the meaning of the data.

Results

Summary of the results

Using a grounded theory approach led to the development of the following three themes regarding the process and establishment of an effective rural IPC between family physicians and therapists in the rehabilitation of older patients: 1) establishing mutual understanding and the perception of psychological safety; 2) enhancing the relationship between healthcare professionals and their patients; and 3) creating new roles in rural family medicine (Fig. 1).

The establishment of mutual understanding and the perception of psychological safety was achievable through continuous dialogue between family physicians and rehabilitation therapists. During this process, an atmosphere conducive to open conversations gradually developed. Furthermore, dialogue between staff members in both departments increased in the hospital setting. Attending conferences and promoting dialogue in the ward facilitated knowledge sharing and heightened respect, promoting understanding. In addition, applying newly acquired knowledge in a clinical setting brought about a sense of joy in the work being performed.

The knowledge acquired through discussions and dialogue could be applied concretely in the clinical setting to enhance the relationship between professionals as well as patients. In this context, communication with patients was enhanced, promoting trust and facilitating dialogue with other healthcare professionals. This dialogue contributed to the establishment of trust in the IPC. For example, patients could divulge information to a therapist that they might not have expressed directly

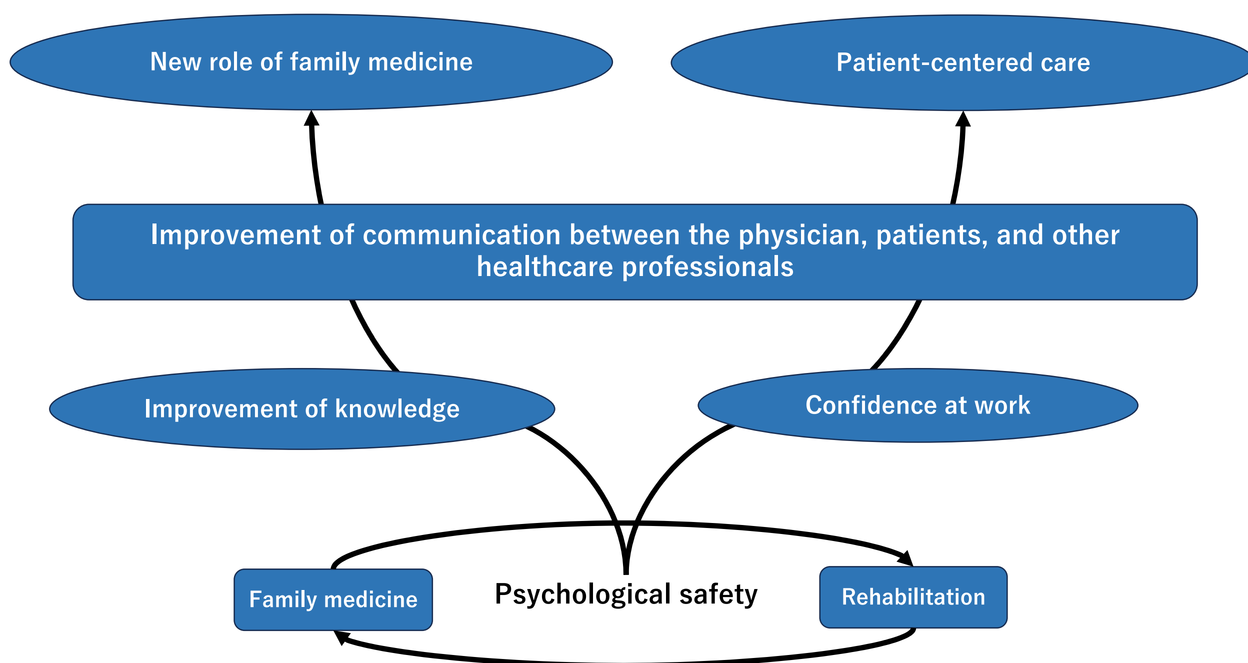

Fig. 1 Conceptual figure depicting the process and establishment of effective interprofessional collaboration between family medicine physicians and rehabilitation therapists in the rehabilitation of older patients in rural settings

to a physician; in these scenarios, therapists were capable of relaying such information to the physicians, thereby supporting a patient-centered approach to family medicine.

A better understanding of the capabilities of family physicians could help guide the creation of new roles for them in rural hospitals. For example, family physicians could play an enhanced role in osteoporosis care and address the medical issues of patients who have previously received treatment from organ-specific specialists; they could also help treat problems identified by therapists through rehabilitation and facilitate patients' transition back into the community following hospital discharge. Focusing on these factors could raise awareness of the importance of family medicine and improve the quality of care provided in rural hospitals.

Establishing trust and psychological safety for effective team building

Engaging in open conversations and transcending professional hierarchies

Members of the two departments initially struggled to communicate efficiently when the conferences first began; a primary reason for this was the existence of a professional hierarchy. Rehabilitation therapists were hesitant to share their opinions with physicians because of the perception of their superiority. For example, one of the participants (Therapist G) stated, "I never expressed my opinion when speaking to a physician. I believed physicians' decisions to be absolute and that my opinion did not matter." Likewise, some family physicians stated that they had never received suggestions from therapists regarding their medical management of patients; however, some others expressed confusion regarding the suggestions. For example, one of the participants (Physician A) stated, "I was surprised that therapists had ideas about the medical management of patients and were aware of changes in their patients' conditions."

Continual discussion and dialogue mitigated the effects that the perception of a professional hierarchy had on the department members. The rehabilitation therapists realized that their perceptions of the family physicians had changed, noting that they seemed more friendly and that mutual discussions became possible. One participant (Therapist B) stated, "The family physicians listened to my suggestions regarding the patients' conditions and collaborated with me to improve them. I am establishing effective relationships with family physicians, making for a friendlier work environment and ensuring that mutual discussions are possible." The family physicians also realized that attending the weekly conferences was an effective means of improving patient care based on the suggestions provided by the therapists. For example, one participant (Physician A) stated, "The therapists care for my patients every day, so they are capable of detecting changes in the patients' conditions and relaying this information to me. This has allowed me to re-examine the patients and adapt my treatment plan effectively."

Sharing of knowledge and skills

Dialogue between the staff members of both departments increased in the hospital setting. At each conference, family physicians and therapists shared and improved their specialized knowledge and skills. One of the participants (Therapist C) stated, "These conferences are useful because they allow me to improve my medical knowledge, especially that related to the pathophysiology of the patients' conditions. This allows me to modify my rehabilitation strategies to provide more personalized care for my patients." Another participant (Physician F) stated, "Older people's conditions can be fragile, and changes can be subtle. A better understanding of the methods through which therapists assess patients' physical abilities can help me assess changes in the ADL of patients, and there can be more discussion with them in the ward." Attending conferences and engaging in dialogue in the ward facilitated knowledge sharing between family physicians and therapists, and respect was heightened, promoting a mutual understanding. One of the participants (Physician B) stated, "I now have a better understanding of the role of therapists and greater respect for the work they do. Other physicians should attempt to better understand the role of therapists in patient care."

A sense of joy in clinical practice

Applying clinical knowledge in practical situations can bring joy to family medicine and rehabilitation department members. The conferences allowed family physicians and therapists to acquire specialized knowledge related to medicine and rehabilitation. The participants realized that they could use their acquired knowledge to effectively improve patient care. One participant (Therapist D) stated, "Through the conferences, a better understanding of rehabilitation improved my knowledge about the pathophysiology of my patients' conditions and increased my interest in the workplace." Another participant (Physician D) stated, "I did not have an in-depth understanding of the rehabilitation trajectory following a stroke. This new understanding allows me to predict the disease course of my patients and talk with them more collaboratively." Participants realized the effectiveness of their collaboration and derived joy from their work. For example, one participant (Physician E) stated, "I enjoy treating patients when there is collaboration with therapists. It has allowed me to broaden my knowledge base and skillset related to family medicine."

Enhancing professional-patient relationships through collaborative practice

Ensuring better communication between professionals and patients

The knowledge acquired through the conference discussions and dialogue could be applied concretely in clinical settings to enhance the relationship and communication between healthcare professionals and their patients. The physicians and therapists were better able to convey the current statuses of their patients' physical and cognitive functions in relation to their diseases. One of the participants (Physician B) stated, "I can use my knowledge about rehabilitation strategies to better communicate with my patients, depending on their medical conditions. The improved communication allows me to more effectively convey details about the comprehensive management of their conditions and establish better relationships with patients and their families." Therapists were also able to better communicate with their patients, including engaging in enriching conversations pertaining to the medical information provided to them by the physicians. One participant (Therapist H) stated, "The improved knowledge about the patients' conditions acquired through interactions with the physicians was beneficial for establishing a dialogue with them. Most patients already know about their medical conditions; however, some hope to receive the information again in the context of rehabilitation, improving their motivation." The knowledge acquired in the conferences helped facilitate rehabilitation-related conversations, satisfying the patients' desire to better understand their diseases and clinical courses.

Establishment of trust and facilitation of dialogue with other healthcare professionals

Enhancement of medical knowledge allowed for more effective communication with patients and facilitated the establishment of trust and dialogue with other healthcare professionals. For example, nurses and nutritionists could share information about patients from the perspectives of family medicine and rehabilitation. One of the participants (Therapist A) stated, "The enhanced knowledge led me to initiate discussions about the details of some patients' conditions with nurses and nutritionists from the perspective of family medicine. I am more confident in my understanding of my patients' conditions, so I am less reluctant to talk about their care and have more trust in the rehabilitation processes." Practical discussions between family medicine physicians and rehabilitation therapists contributed to mutual trust among the medical teams.

Furthermore, the dialogue between family physicians, therapists, and other medical professionals contributed to the establishment of trust in the IPC, with some participants emphasizing that they became more confident in discussing their patients' clinical courses and discharge plans with various professionals. They realized that they could express their opinions about the patients comprehensively and concretely through the conference discussions. One of the participants (Therapist J) stated, "I

am now able to express my opinions on patients' treatment plans during conversations with other medical professionals. This confidence could be a result of the discussion with family physicians. I previously lacked confidence in my understanding of medical sciences and clinical courses. Now, however, I have frequent discussions with family physicians, which has led to effective collaboration with various professionals." Another participant (Physician A) stated, "As a doctor, I was not interested in rehabilitation and believed that social workers and therapists were capable of adjusting discharge plans and ensuring patients were able to maintain ADL in their homes. However, through the discussion, I learned that they have certain anxieties regarding the medical condition of my patients but that the collaboration could become better than it has been in the past."

Supporting a patient-centered approach

The dialogue between therapists and patients during rehabilitation allowed therapists to relay messages to physicians that the patients would have been reluctant to express directly, including complaints related to movement and symptoms, thereby supporting a patient-centered approach to family medicine. One participant (Therapist C) stated, "Patients describe various symptoms to me while admitted; however, the situation is challenging. I have been reluctant to say specific things to them because I did not know how to respond." Some therapists struggled with some of their conversations with patients; however, the discussions with the family physicians helped create better relationships between them, allowing the therapists to more easily share information about their patients, especially about their anxieties and hopes. For example, one participant (Therapist G) stated, "It is now less stressful to talk with my patients because I am able to relay information about their anxieties and fears to physicians, even if the information has negative connotations." The participants emphasized that information sharing improved the quality of care provided, as therapists could compensate for their lack of knowledge through patient-centered approaches. One participant (Physician C) stated, "The information provided by therapists could improve my ability to care for my patients, including dealing with psychological and social issues in a respectful manner."

Creating new roles for family physicians to meet evolving needs

Understanding family physicians' capabilities

The improved understanding of family physicians' capabilities among therapists has contributed to the creation of new roles for family physicians in rural hospitals. Through the discussion at the conferences and in the wards, the therapists realized that family physicians could provide more comprehensive care to older patients and that they had broader views regarding healthcare in hospitals. One participant (Therapist J) stated, "The role and capabilities of family physicians are not well-known in hospitals. I am impressed with their ability to care for patients while considering various perspectives." Another participant (Therapist L) stated, "Family physicians' comprehensive understanding of the care of older patients is helpful for patient management during hospitalization. The discussions taught me that they can care for patients at all stages, from admission to discharge, as well as in home care settings." Discussion and collaboration between therapists and family physicians could make the family physicians' abilities more apparent to therapists, demonstrating that they can function well in various settings.

Involvement of family physicians in quality improvement activities

Through the discussion between the family medicine and rehabilitation departments, the therapists gained a better understanding of family medicine, which led to the involvement of Family Medicine in various IPCs and quality improvement initiatives. One participant (Therapist B) stated, "The collaboration with therapists is beneficial for the Department of Family Medicine. I am now involved in the management of patients requiring orthopedic care. Orthopedic surgeons have consulted the patients based on the therapists' suggestions. I came to realize that Family Medicine could be recognized as an important department in a hospital setting." Through hospital collaboration, family physicians were involved in the care of patients with osteoporosis, they addressed the medical issues of patients who had been cared for by organ-specific physicians that were identified by therapists through rehabilitation, and they helped facilitate smooth transitions as patients returned to the community. One participant (Therapist H) stated "Rural hospitals can function effectively as family medicine departments. They now play a role in providing various types of care for patients, including osteoporosis detection and management and the care of orthopedic patients. I can easily initiate conversations with family physicians related to patients' conditions. Family physicians are even capable of dealing with medical issues experienced by patients in other departments."

Awareness of the importance of family medicine

Through these efforts, awareness of the importance of family medicine resulted in improved quality of care in rural hospitals. Family Medicine is a new department in hospitals throughout Japan. Many medical professionals

were only vaguely aware of the department's functions, and many have struggled to collaborate with the department. The participants emphasized that the Department of Family Medicine was critical for patient care in rural hospitals and that more collaboration should be promoted to clarify and broaden the roles of the department. One participant (Therapist A) stated "Family medicine is critical in a hospital setting; however, I previously knew very little about this area of specialization. Family medicine could be applied to other regions of Japan. Many organ-specific specialists have been employed in the hospitals I have worked in, which might be the case for many medical professionals. This collaboration with the family medicine department highlights its importance." Increased awareness of the importance of the department has motivated therapists to collaborate with family physicians by comprehensively involving multiple medical professionals to care for older patients. Most participants emphasized that the presence of family medicine in rural hospitals could provide a link between various organ-specific physicians and other healthcare professionals, thereby effectively improving patient care. One of the participants (Therapist K) stated, "Members of family medicine departments can collaborate with various types of medical professionals, including organ-specific specialists. Family physicians are highly capable of improving IPC in rural hospitals, primarily due to their ability to communicate effectively in many professional contexts." Finally, another participant (Physician C) stated, "I enjoy the collaboration with therapists and other medical professionals, which has resulted from the initial collaboration with rehabilitation therapists. In addition, as a family physician, I feel it is an accomplishment to be able to deal with the patients of various organ-specific specialists. Such collaboration should be a competency of family physicians in rural hospitals."

Discussion

The implementation of the IPC initiative between family physicians and rehabilitation therapists had a profound impact on daily practices, significantly enhancing the quality of patient care in a rural hospital setting. The continuous dialogue and collaboration fostered by the IPC initiative resulted in several key outcomes that merit a more in-depth exploration.

The IPC initiative facilitated a notable shift in the daily practices of both family physicians and rehabilitation therapists. Regular interdisciplinary meetings enabled these professionals to share knowledge and insights, leading to improved patient management strategies. For example, rehabilitation therapists reported that their understanding of patients' medical conditions deepened, allowing them to tailor rehabilitation plans more effectively. This collaboration meant that therapists could adjust rehabilitation strategies based on the latest medical updates provided by family physicians, ensuring that therapeutic interventions always aligned with the patients' current health status [3, 10]. Conversely, family physicians benefited from the therapists' detailed observations of patients' progress, which informed adjustments to medical treatments [3, 10]. For instance, if a therapist notices a patient's mobility improving or deteriorating, this information could prompt a physician to reassess and potentially alter medication dosages or other aspects of the patient's treatment plan. This bidirectional flow of information ensures that care plans are comprehensive and responsive to patients' evolving needs, thus, fostering a holistic approach to patient care [3, 10].

The study's findings have broader implications for rural healthcare settings, where resources are often limited, and healthcare professionals must adopt versatile roles. The success of the IPC initiative underscores the potential of collaborative practices to optimize resource use and improve patient outcomes [12, 17]. By establishing robust communication channels and fostering mutual respect, rural hospitals can create a more cohesive and effective healthcare delivery system [12, 17]. This approach not only enhances the quality of care but also improves job satisfaction among healthcare professionals, which is crucial for retaining staff in rural areas [12, 17]. For example, the sense of professional fulfillment derived from working in a supportive, team-oriented environment can reduce burnout rates among rural healthcare providers, thereby contributing to staff retention and stability. Moreover, the interdisciplinary model can serve as a template for other rural hospitals aiming to improve care delivery through enhanced teamwork and communication [12, 17].

Implementing similar IPC initiatives in other contexts may present several challenges, including resistance to change, hierarchical barriers, and logistical constraints. Overcoming these challenges requires a deliberate and structured approach. Strong leadership is essential to drive the initiative and model collaborative behavior. Leaders must actively promote the value of IPC, provide the necessary resources, and ensure that all team members are engaged in the process. Leadership can also play a critical role in breaking down hierarchical barriers by fostering an environment where all voices are heard and valued [21–23]. Offering training programs that emphasize the value of IPC and equip staff with the necessary communication skills can facilitate smoother implementation. These programs should include workshops on teamwork, conflict resolution, and effective communication techniques tailored to the healthcare setting. Role-playing scenarios and interdisciplinary simulations can

help staff practice and internalize these skills [24, 25]. Adapting schedules to allow regular interdisciplinary meetings without disrupting patient care can help maintain the initiative's momentum. This might involve creating dedicated time slots for IPC meetings for integration into the regular work schedule, ensuring that patient care duties are adequately covered during these times. Addressing these challenges proactively can pave the way for successful IPC implementation in diverse healthcare settings. For example, securing buy-in from all levels of staff through clear communication of the benefits of IPC can mitigate resistance to change. Additionally, creating policies that formally recognize and reward collaborative efforts can further embed IPC into the organizational culture [26, 27].

The long-term sustainability and scalability of IPC models depend on several factors. Embedding IPC practices into the hospital's standard operating procedures ensures they become an integral part of the organizational culture. This can be achieved by developing protocols that mandate regular interdisciplinary meetings and collaborative decision-making processes [28, 29]. Regular assessment of IPC outcomes and processes can identify areas for improvement and sustain the initiative's effectiveness. Implementing a system of continuous feedback in which staff can provide input on IPC practices and suggest improvements can keep the initiative dynamic and responsive to changing needs [30–32]. Customizing the IPC model to fit the specific needs and resources of different healthcare settings can enhance its scalability. For instance, while the core principles of IPC remain the same, the implementation strategies might vary depending on the institution size, the specific health issues prevalent in the community, and the available resources [30–32]. Our results demonstrate that with proper support and structure, IPC initiatives could significantly improve patient care and professional satisfaction. Future research should focus on longitudinal studies to assess the long-term impact of IPC on patient outcomes and explore the feasibility of scaling such models across various healthcare environments [33, 34]. Doing so would make it possible to gather comprehensive data on the effectiveness of IPC in different contexts, thereby providing a robust evidence base for broader implementation [33, 34].

The current findings elucidate the evolving roles of family physicians through collaboration with rehabilitation therapists in a rural community hospital. Continuous dialogue fosters mutual understanding, enhances patient care, and supports the development of new roles for family physicians [21–23]. Family medicine plays a vital role in rural primary care settings for geriatric care, and further investigation in other settings is recommended to improve geriatric care and promote mutual learning among healthcare professionals. The findings align with the concept of psychological safety, in which open dialogue and mutual respect within teams can enhance work satisfaction and patient care quality [21–23]. The promotion of continual discussions among family physicians and therapists can improve communication with other healthcare professionals and patients. Reliable conversation with other professionals can enhance trust in collaborations and in each other's ability to perform their roles effectively. Confidence in one's ability to do a job and knowledge about a patient's medical condition can facilitate interprofessional conversations in IPCs [27, 28]. The ability of therapists to relay their patients' hopes and anxieties to family physicians can further support patient-centered care [29–32].

Improving the awareness of the capabilities of family medicine physicians among other healthcare professionals can lead to a broadening of their roles in rural community hospitals, improving patients' quality of care, and highlighting the contextual importance of family medicine. In rural Japan, family medicine is not well understood by the general population or among medical professionals, as its status as a medical specialization was not recognized until recently [33, 34]. This study demonstrates that other medical professionals are beginning to recognize family medicine physicians as highly capable medical professionals who are able to adopt a comprehensive approach to geriatric care. Family physicians are system-specific specialists who can simultaneously treat multiple concurrent medical issues [2, 35], yet their potential functional role in rural community hospitals has remained unexplored. The results of this study could help motivate policymakers to allocate family physicians to clinics and community hospitals in Japan to provide adequate comprehensive care. The comprehensive management skills of family physicians can be leveraged to ensure a multimodal approach to treatment in rural hospitals, thereby improving the quality of care received [36, 37].

However, recognition of the importance of family medicine and effective allocation of family physicians remain inadequate [38–40]. Improving such recognition in rural contexts with insufficient healthcare resources may enhance the quality of care, elevate the image of family medicine, and increase the number of family physicians. This study had several limitations, the first being its transferability. This study was conducted at a single rural community hospital. To overcome this limitation, the researchers elucidated the interactive process and effectiveness of the collaboration between the family medicine and rehabilitation departments through iterative data collection and comprehensive descriptions of

the contexts and learning methods. Data were collected at multiple departments in a rural hospital. Another potential limitation is the study's reliability; to improve it, iterative data analysis was conducted over a long period. Future studies should investigate the effects of this IPC between the two departments and changes in perception related to family medicine in other regions and international contexts. Additionally, the first and second authors coded the data transcripts, which may have improved the credibility of this study based on the differences in perspectives and backgrounds between those two authors. Furthermore, a third researcher reviewed the coding process, concepts, and themes for investigator triangulation.

Conclusion

This study elucidated the concrete processes related to the evolving roles of family physicians through a collaboration with rehabilitation therapists in a rural community hospital. The study confirmed that continual dialogue between family physicians and therapists can lead to mutual understanding, increase knowledge, and heighten mutual respect. Implementing the acquired knowledge in clinical settings can create a sense of joy in the work being performed and enhance the relationship between healthcare professionals and patients, establishing trust in IPCs. Improved dialogue between therapists and patients can ensure that physicians are made aware of the concerns of their patients, even if they are not expressed directly, thereby supporting patient-centered approaches to family medicine. In this process, a better understanding of the capabilities of family physicians could lead to the creation of new roles for them in rural hospitals where further collaboration would improve both the awareness of the importance of family medicine and the quality of care administered. Family medicine plays a vital role in rural primary care settings for geriatric care in community hospitals. The role of family medicine in hospitals should be investigated in other settings to improve geriatric care and promote mutual learning among healthcare professionals.

Abbreviations

ADL Activities of daily living
CBME Competency-based medical education
IPC Interprofessional collaboration

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12875-024-02540-z.

Supplementary Material 1.

Acknowledgements

We would like to thank all the patients who participated in this research.

Authors' contributions

RO was involved in the study's conceptualization, methodology, validation, formal analysis, investigation, data curation, writing (original draft preparation and the review and editing), data visualization, and project administration. KY was involved in the study's conceptualization, validation, formal analysis, investigation, data curation, writing (original draft preparation and the review and editing), data visualization, and project administration. CS participated in the study's validation, formal analysis, writing (original draft preparation and the review and editing), data visualization, and supervision. All authors have read and approved the final manuscript.

Funding

This study received no external funding.

Availability of data and materials

The datasets collected and/or analyzed in the present study may be obtained from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

The study was conducted in accordance with the guidelines of the Declaration of Helsinki and was approved by the Institutional Ethics Committee of Unnan City Hospital (protocol code 20220004; date of approval: March 2021). Informed consent was obtained from all participants involved in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

Author details

[1]Community Care, Unnan City Hospital, 96-1 Iida, Daito-Cho, Unnan, Shimane Prefecture 699-1221, Japan. [2]Department of Community Medicine Management, Faculty of Medicine, Shimane University, 89-1 Enya Cho, Izumo, Shimane Prefecture 693-8501, Japan.

Received: 16 July 2023 Accepted: 24 July 2024
Published online: 03 August 2024

References

1. Tromp M. Family physicians as generalists. Can J Rural Med. 2019;24:33–4.
2. Ohta R, Sano C. Family physicians as system-specific specialists in Japan's aging society. Cureus. 2022;14:e30811.
3. Ohta R, Sano C. The effectiveness of family medicine-driven interprofessional collaboration on the readmission rate of older patients. Healthcare (Basel). 2023;11:269.
4. Park G, Miller D, Tien G, Sheppard I, Bernard M. Supporting frail seniors through a family physician and home health integrated care model in Fraser health. Int J Integr Care. 2014;14:e001.
5. Tazkarji B, Lam R, Lee S, Meiyappan S. Approach to preventive care in the elderly. Can Fam Physician. 2016;62:717–21.
6. Gené Huguet L, Navarro González M, Kostov B, Ortega Carmona M, Colungo Francia C, Carpallo Neito M, et al. Pre frail 80: multifactorial intervention to prevent progression of pre-frailty to frailty in the elderly. J Nutr Health Aging. 2018;22:1266–74.
7. Hanlon P, Nicholl BI, Jani BD, Lee D, McQueenie R, Mair FS. Frailty and pre-frailty in middle-aged and older adults and its association with multimorbidity and mortality: a prospective analysis of 493 737 UK Biobank participants. Lancet Public Health. 2018;3:e323–32.
8. Sarmento J, Rocha JVM, Santana R. Defining ambulatory care sensitive conditions for adults in Portugal. BMC Health Serv Res. 2020;20:754.

9. Hodgson K, Deeny SR, Steventon A. Ambulatory care-sensitive conditions: their potential uses and limitations. BMJ Qual Saf. 2019;28:429–33.
10. Petruseviciene D, Krisciūnas A. Evaluation of activity and effectiveness of occupational therapy in stroke patients at the early stage of rehabilitation. Medicina (Kaunas). 2008;44:216–24.
11. Marshall S, Bauer J, Isenring E. The consequences of malnutrition following discharge from rehabilitation to the community: a systematic review of current evidence in older adults. J Hum Nutr Diet. 2014;27:133–41.
12. Bencivenga L, Femminella GD, Ambrosino P, Bosco Q, De Lucia C, Perrotta G, et al. Role of frailty on cardiac rehabilitation in hospitalized older patients. Aging Clin Exp Res. 2022;34:2675–82.
13. Poitras ME, Maltais ME, Bestard-Denommé L, Stewart M, Fortin M. What are the effective elements in patient-centered and multimorbidity care? A scoping review. BMC Health Serv Res. 2018;18:446.
14. Kim J, Parish AL. Polypharmacy and medication management in older adults. Nurs Clin North Am. 2017;52:457–68.
15. Romskaug R, Skovlund E, Straand J, Molden E, Kersten H, Pitkala KH, et al. Effect of clinical geriatric assessments and collaborative medication reviews by geriatrician and family physician for improving health-related quality of life in home-dwelling older patients receiving polypharmacy: a cluster randomized clinical trial. JAMA Intern Med. 2020;180:181–9.
16. Conradie T, Berner K, Louw Q. Rehabilitation workforce descriptors: a scoping review. BMC Health Serv Res. 2022;22:1169.
17. Ohta R, Weiss E, Mekky M, Sano C. Relationship between dysphagia and home discharge among older patients receiving hospital rehabilitation in rural Japan: a retrospective cohort study. Int J Environ Res Public Health. 2022;19:10125.
18. Teram E, Schachter CL, Stalker CA. The case for integrating grounded theory and participatory action research: empowering clients to inform professional practice. Qual Health Res. 2005;15:1129–40.
19. Im D, Pyo J, Lee H, Jung H, Ock M. Qualitative research in healthcare: data analysis. J Prev Med Public Health. 2023;56:100–10.
20. Chapman AL, Hadfield M, Chapman CJ. Qualitative research in healthcare: an introduction to grounded theory using thematic analysis. J R Coll Physicians Edinb. 2015;45:201–5.
21. Murray JS, Kelly S, Hanover C. Promoting psychological safety in healthcare organizations. Mil Med. 2022;187:808–10.
22. Haviland C, Green J, Dzara K, Hardiman WO, Petrusa ER, Park YS, et al. Psychological safety between pediatric residents and nurses and the impact of an interdisciplinary simulation curriculum. BMC Med Educ. 2022;22:649.
23. Aranzamendez G, James D, Toms R. Finding antecedents of psychological safety: a step toward quality improvement. Nurs Forum. 2015;50:171–8.
24. Ohta R, Ryu Y, Yoshimura M. Realist evaluation of interprofessional education in primary care through transprofessional role play: what primary care professionals learn together. Educ Prim Care. 2021;32:91–9.
25. Field J, Hervey T, Walsh S, Davis J, Garcia LT, Valachovic RW. ADEA-ADEE shaping the future of dental education III: from interprofessional education to transprofessional learning: reflections from dentistry, applied linguistics, and law. J Dent Educ. 2020;84:105–10.
26. Ajjawi R, Bearman M, Sheldrake M, Brumpton K, O'Shannessy M, Dick ML, et al. The influence of psychological safety on feedback conversations in general practice training. Med Educ. 2022;56:1096–104.
27. Rosen MA, DiazGranados D, Dietz A, Benishek LE, Thompson D, Pronovost P, et al. Teamwork in healthcare: key discoveries enabling safer, high-quality care. Am Psychol. 2018;73:433–50.
28. Doornebosch AJ, Smaling HJA, Achterberg WP. Interprofessional collaboration in long-term care and rehabilitation: a systematic review. J Am Med Dir Assoc. 2022;23:764-77.e2.
29. Olde Bekkink M, Farrell SE, Takayesu JK. Interprofessional communication in the emergency department: residents' perceptions and implications for medical education. Int J Med Educ. 2018;9:262–70.
30. Bookey-Bassett S, Markle-Reid M, Mckey CA, Akhtar-Danesh N. Understanding interprofessional collaboration in the context of chronic disease management for older adults living in communities: a concept analysis. J Adv Nurs. 2017;73:71–84.
31. Huh A, Shin JH. Person-centered care practice, patient safety competence, and patient safety nursing activities of nurses working in geriatric hospitals. Int J Environ Res Public Health. 2021;18:5169.
32. Hwang JI, Kim SW, Chin HJ. Patient participation in patient safety and its relationships with nurses' patient-centered care competency, teamwork, and safety climate. Asian Nurs Res (Korean Soc Nurs Sci). 2019;13:130–6.
33. Ohta R, Ryu Y, Sano C. Family medicine education at a rural hospital in Japan: impact on institution and trainees. Int J Environ Res Public Health. 2021;18:6122.
34. Niimura M, Motomura K, Kaneko M, Tsuji T, Yodoshi T. Another challenge of family medicine residency training in Japan. Fam Med. 2021;53:730–1.
35. Carson JD, Baker C, Frémont P. Collaboration is key to concussion management in family medicine. Can Fam Physician. 2022;68:175–6.
36. Martinez-Bianchi V, Frank B, Edgoose J, Michener L, Rodriguez M, Gottlieb L, et al. Addressing family medicine's capacity to improve health equity through collaboration, accountability and coalition-building. Fam Med. 2019;51:198–203.
37. Maheux B, Côté L, Sobanjo O, Authier L, Lajeunesse J, Leclerc M, et al. Collaboration between family physicians and nurse clinicians: opinions of graduates in family medicine. Can Fam Physician. 2014;60:e416–22.
38. Kato K. Family medicine viewpoint: seeing patients in the context of their lives. Fam Pract. 2022;39:781–2.
39. Yoshida S, Matsumoto M, Kashima S, Koike S, Tazuma S, Maeda T. Geographical distribution of family physicians in Japan: a nationwide cross-sectional study. BMC Fam Pract. 2019;20:147.
40. Okazaki Y, Yoshida S, Kashima S, Koike S, Bowman R, Matsumoto M. Geographic distribution of family physicians in Japan and the USA: a cross-sectional comparative study. Rural Remote Health. 2022;22:7163.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.