Reinventing the Medical Nearby: A Study on the Reproduction of Medical Space in Border Ethnic Areas--Taking the Inner Mongolian Grassland Small Medicine Box as an Example

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Abstract. This paper focuses on medical resource accessibility in China's border ethnic areas, using Inner Mongolia's grassland medicine box model as a case study. It introduces spatial production theory and a “nearby” theory perspective into grassroots healthcare, proposing the concept of “medical nearby” . It reveals the mechanisms behind material space innovation, cultural space revival, and social space reshaping, exploring ways to enhance medical resource accessibility and recreate medical nearby in pastoral areas, aiming to improve healthcare access in China's border ethnic areas and contribute to resilient public health systems.

Keywords: grassland medicine box; “nearby” theory perspective; spatial production theory; medical resource sinking.

1. Formulation of the issue

Medical resource and specialist accessibility in border areas, especially in pastoral regions, remains a critical issue due to remote locations and transportation challenges, making it difficult to meet herders' healthcare needs. Recent public health emergencies have further strained resource allocation. In response, Inner Mongolia optimized its grassland medicine box model, introducing the “Family Medicine Box” program in 2011, supplemented by mobile stations and family doctor teams. The 2020 pandemic prompted the “Internet + small medicine box” model to enhance primary healthcare access.

This study integrates “nearby” theory perspectives and spatial production theory to analyze how the grassland medicine box model improves resource allocation, meets herders' health needs, and strengthens community bonds. It explores the model's success and proposes pathways to reconfigure healthcare nearby, offering insights for optimizing medical resource distribution and primary healthcare systems in border ethnic areas.

2. Theoretical foundations

2.1. Spatial Production Theory

Space was initially a central concept in geography, but has gradually been given a social meaning. In the late 20th century, Lefebvre developed a theory of spatial production, which argued that space is a social product of the intersection of social practices, power, and culture[1], and the dichotomy between the material and affective dimensions of space was broken. Sawyer et al. expanded the theoretical content of spatial production by summarizing spatial practice, representations of space, and spaces of representations [2], which correspond to three dimensions: material, spiritual, and social, respectively. The concept of space links material and cultural with spiritual and social[3], and there is an inter-constructive relationship between the three. Scholars such as David Harvey and Edward W. Soja have further enriched and developed the theory of spatial production to analyze society and cities from a spatial perspective. Suja emphasizes the exploitation and inequality in the process of spatial production, highlights the subjectivity of human beings, and argues that space is produced in the context of being in some purposeful[4], opposing class, racial, gender , and cultural discrimination and segregation on the basis of a specific location, opposing universal values that marginalize local differences, and advocating for local solutions to spatial injustices[5]. Marxist spatial theory analyzes

spatial production, spatial justice, and their relationship to politics, capital, and culture in a spatial dimension, expanding the overarching thinking of spatial narratives [6].

Based on Lefebvre's spatial production theory, this paper examines how the Little Medicine Box of the Prairie reconfigures medical nearby spaces and their spatial practices. The theory highlights space as a product of social practice and offers a framework for understanding medical nearby development. In spatial reproduction, physical space construction is foundational, but spiritual and social spaces are equally vital. Medical facility layouts, resource distribution, doctor-patient relationships, and community participation collectively shape medical nearby spatial practices. Spatial representations reflect societal perceptions of medical spaces, while representational spaces embody power dynamics and cultural identities. Integrating "nearby" theory perspectives with spatial production theory deepens understanding of medical nearby structures, functions, and roles in social change, providing theoretical and practical guidance for reshaping medical nearby.

2.2. "Nearby" Theory Perspective

The "nearby" theory perspective, proposed by anthropologist Biao Xiang, refers to the living space where people from different positions and backgrounds meet frequently in the normality of life [7], which is also a network of daily social interactions, including nearby and community ties, fostering face-to-face connections, localized trust, and mutual support. However, the nearby is fading. When people become indifferent to everyday encounters and isolate themselves in individual atomization, the nearby vanish, taking with them the vitality and cohesion of grassroots communities [8], primarily manifesting as blurred interpersonal relationships and a rejection of social interactions, yet the "nearby" theory perspective is rarely applied in healthcare. In pastoral areas, due to unique geographic conditions, medical resources are unevenly distributed, making healthcare access difficult for herders. Nearby medical care is nearly vanishing, and herders' health urgently requires the return or decentralization of medical resources to meet their pressing healthcare needs.

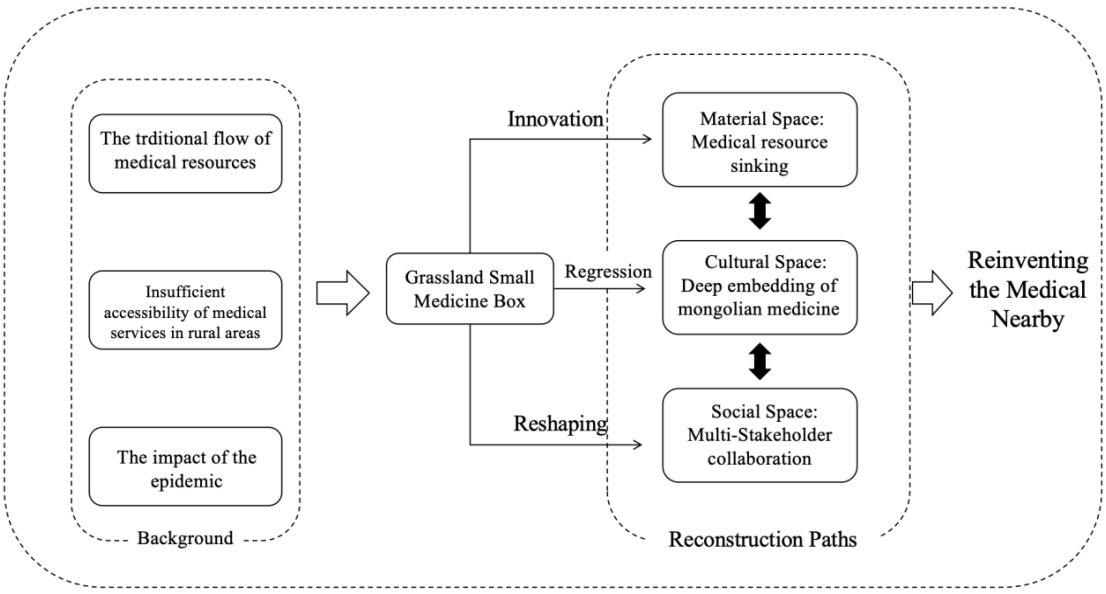

Figure 1 Analytical framework for reinventing the medical nearby

3. The Birth and Dilemma of the Medical Nearby

3.1. Research Review

Border ethnic regions have long faced challenges in public healthcare accessibility and equity, marked by shortages of resources and personnel in grassroots facilities, overcrowded large hospitals, and underutilized small clinics [9]. To improve accessibility, scholars recommend policy guidance, establishing regional collaboration mechanisms, enhancing outreach, optimizing service processes,

and improving villagers' healthcare experiences[10]; addressing disparities in public services and ensuring basic service provision at the local level are key to improving livelihoods, alongside promoting supply-side reforms in public goods[11]; Scholars also suggest diversifying grassroots healthcare providers, improving talent recruitment through multiple channels[12], achieving service homogeneity across regions[13], emphasizing technological empowerment, upgrading medical equipment, and establishing remote diagnosis systems[14].

In terms of equilibrium, some scholars advocate the establishment of a horizontal learning mechanism for healthcare institutions through the construction of a public healthcare service system network to realize knowledge sharing and circulation[15]; Strengthening the linkage between health centers and county hospitals and tertiary hospitals, promoting the institutionalization of second- and third-level hospitals' support for primary medical institutions, and clarifying the vertical hierarchical diagnosis and treatment mechanism[16], improving grassroots healthcare ensures fair and efficient resource use.

However, proposals often ignore resource scarcity and pastoral areas' vast, sparse populations, hindering true resource return and efficiency. Localized funding plans for services like medical assistance and robust oversight systems are needed to institutionalize cost-sharing at provincial and local levels, easing grassroots governments' financial burden [17]. Existing studies mainly explore the sinking of high-quality medical resources and the reconstruction of medical nearby from economic and managerial perspectives, lacking sociological and anthropological insights into the social structures, cultural practices, and behavioral logic of medical nearby. This paper integrates spatial production theory and the "nearby" theory perspective to explore effective grassroots resource integration and medical nearby reconstruction, offering new approaches to address healthcare accessibility challenges.

3.2. The Birth of Medical Nearby

Medical nearby extend Biao Xiang's “nearby” concept into healthcare, emphasizing accessibility, cultural adaptability, and community symbiosis as the foundation for constructing new medical spaces. Specifically, medical nearby focus not only on geographic accessibility but also on aligning medical resources with community needs across physical, cultural, social, and psychological dimensions. This requires medical resources to adapt to and integrate into local cultural contexts, enhancing service acceptability and effectiveness. Additionally, medical nearby rely on symbiosis in community relationships, fostering a mutually reinforcing cycle between medical resources and residents.

The flow of grassroots medical resources and the practice of medical nearby have a long and rich history in Inner Mongolia [18], especially since the Ming and Qing dynasties, temples have not only served religious functions but also played a significant role in providing medical services. During the Qing dynasty, particularly from the Kangxi to Jiaqing periods, the Qing court built numerous temples in Mongolia for governance and consolidation purposes. By the mid-Qing dynasty, there were approximately 1,800 Lamaist temples in Inner Zasak Mongolia, with around 150,000 lamas [19]. Living Buddhas and Hutukhtu held significant privileges and political power, with their alabatu (subjects) exempt from military service, secular labor, and taxes, while their education was confined to temples.

The vast and sparsely populated Mongolian steppe made it difficult for traditional medical resources to reach dispersed herders. “Mamba”, derived from the Tibetan word for “doctor”, refers to healers with traditional medical knowledge in the Mongolian system. Monks, after entering monasteries, studied Mongolian, Tibetan, and Chinese languages, Buddhist classics, philosophy, and medicine. Gelugpa monasteries established Mamba tratsang (Monastic Medical Schools), training renowned Mongolian and Tibetan doctors. Mongolian doctors practiced “walking medicine” , carrying medical bags on horseback or foot to treat herders, adapting to nomadic life and embodying the Mongolian medical concept of “harmony between heaven and humanity”.

The Qing dynasty's "Mamba walking doctors" represented a crystallization of wisdom in the nomadic medical system, matching limited medical resources with the mobility of herders. This approach brought medical resources directly to herders, saving time and costs while ensuring accessibility and effectiveness, contributing to the emergence of medical nearby.

In Chifeng's Bahrain Right Banner, the deeds of the famous Mongolian doctor Uri Jihu are celebrated. A monk from childhood, he devoted himself to Mongolian and Tibetan medicine and Buddhist classics. After years of study, he became a royal physician, serving both the royal family and common people through "walking medicine". Known for his selflessness, he often accepted a khata (Tibetan or Mongolian ceremonial scarf) and a bow as gratitude from poor families instead of monetary payment, earning widespread respect and affection. In addition to Uri Jihu, there are also some famous "mambas", such as Pagba Jiabu, Jigji, Guan Busleng, etc[20]. The deeds of these "mambas" not only laid a solid foundation for the development of Mongolian medicine, but also had a far-reaching impact on the development of the pastoral medical nearby.

3.3. Development of the Medical Nearby

After the founding of New China, the role of monasteries gradually declined, and the pastoral healthcare system began integrating into the national public health system. Inner Mongolia's public healthcare system prioritized pastoral areas, focusing on establishing institutions, training medical teams, and controlling severe epidemic diseases to advance healthcare development [21]. From 1950 to 1957, rural and pastoral areas annually trained sanitarians, health workers, and midwives responsible for basic treatment, epidemic prevention, and maternal and child healthcare. By 1958, Flag County health centers gradually transformed into hospitals, further consolidating the medical nearby in pastoral areas. Although medical resources had sunk to the flag county level, challenges like resource shortages and rudimentary equipment persisted. At this stage, barefoot doctors (village doctors) primarily treated herders. These doctors, appointed by grassroots governments and guided by township health centers, combined nomadic production with primary healthcare duties. Known as "horseback doctors" by herders for their rapid transition from agricultural work to medical service, they played a key role in improving the medical nearby and safeguarding herders' health.

After the reform and opening up, the autonomous region's Department of Health continued healthcare reforms in rural and pastoral areas. In 1982, it issued the Notice on Strengthening Rural and Pastoral Area Grassroots Health Organizations, converting brigade medical stations into health clinics (rooms). By 1987, 85.7% of the gacha villages in the region had health centers [22]. Thus, a complete primary public healthcare system was established in pastoral areas, with health offices becoming key venues for farmers and herders to access basic medical services and medicines. Sumu Township Health Centers, as the core of primary care, not only provided treatment but also trained rural doctors to enhance their skills and service quality.

Thus, a complete primary public healthcare system was established in pastoral areas, with health offices becoming key venues for farmers and herders to access basic medical services and medicines. Sumu Township Health Centers, as the core of primary care, not only provided treatment but also trained rural doctors to enhance their skills and service quality [23]. Taking the small medicine box as a starting point, local governments established a contracted doctor home-visit mechanism. Family doctors restock the box every six months and provide home visits to guide herders on medication and self-care.

The small medicine box optimizes the "patient-hospital" model, reducing long-distance travel for herders. It innovates the "patient-family doctor-hospital" model, bringing healthcare closer to herders, enabling doorstep medical protection, and preventing disease severity. It transports urban medical resources to pastoral areas, builds an extensive medical network, and enhances the accessibility, coverage, and resilience of the public healthcare system. Implementation Plan for the Construction of Healthy Villages in Inner Mongolia, issued by the Health Planning Commission of the Inner Mongolia Autonomous Region[24], mentions implementing the small medicine box project in border, pastoral, and impoverished counties, delivering chronic disease medications and health management,

providing family doctor guidance on common disease medications, and using mobile health stations and service vehicles for regular medical rounds and home visits to meet the healthcare needs of farmers and herders living over 10 kilometers away.

3.4. Realistic Dilemmas In The Medical Nearby

However, frequent major public health events in recent years have significantly challenged the small medicine box model. First, its convenience is compromised as herders must travel to health centers or testing sites for nucleic acid tests, averaging 35 kilometers and sometimes over 100 kilometers. This has led many herders to question the usefulness of the small medicine box. Second, the types and quantities of medicines are inadequate for sudden epidemic needs.

The medicines in the small medicine box, originally intended for basic care, are unsuitable for viral infections. Herders' demand has shifted to drugs like ibuprofen and Lianhua Qingwen, which have become essential for epidemic preparedness.

Quarantine policies have suspended the family doctor system, disrupting the "patient-family doctor-hospital" chain and damaging the medical nearby network. Medical resources are hard to deliver, and herders struggle to access timely emergency care. Increased demand for family doctors arises from frequent public health events, herders' limited awareness, and geographic and policy constraints.

In summary, the grassland small medicine box model faces multiple challenges in emergencies, including weakened accessibility, insufficient medicine and equipment supply, and a lack of medical nearby actors. To avoid a “lose-lose” situation for residents, hospitals, and the government, collaborative efforts are needed to optimize the model, rebuild the medical nearby, and create a resilient public healthcare network with spatial, social, and emotional dimensions.

4. Practical Path of Reinventing Medical Nearby

4.1. Innovation of material space: “Internet + small medicine box” drives the sinking of medical resources

According to Lefebvre, spatial practices include production and reproduction, as well as a collection of special locations and spatial features of each social formation[25]. Facing challenges like inaccessible small medicine boxes, mismatched emergency medicines, and manpower shortages, the government proposed networking the small medicine boxes to create an “Internet + Small Medicine Box” model. As early as 2016, New Barag Left Banner piloted the fourth-generation small medicine boxes, integrating “Internet +” services with digital chronic disease management and intelligent medicine supervision.

Empowered by the internet, herders upload real-time health data via online platforms, enabling doctors to monitor and guide them remotely. Collaborating with enterprises, the government launched the “Online Nucleic Acid + IoT Consultation” program, facilitating inter-departmental coordination. By linking with the Municipal Public Security Bureau, herders' personal information files were created, and a mobile app was developed to upload antigen test data to the Public Security Big Data Center for nucleic acid testing. The small medicine boxes, equipped with IoT-enabled glucose and blood pressure monitors, transmit herders' health data to family doctors in real time. Doctors can monitor health conditions, provide medication plans, and address remote medical issues.

With increased financial support and continuous optimization, the government has broken the time and space limitations of the small medicine box, reconnecting the “patient-family doctor-hospital” chain and meeting grassroots healthcare needs. The “Internet + Small Medicine Box” model effectively sinks medical resources to the grassroots, providing a solid foundation for rebuilding the primary healthcare system.

To sum up, the epidemic has reshaped the medical nearby of the pastoral area, and its material space shows the characteristics of discrete, and the living space has been divided or reorganized [26], leading to the deconstruction of the original spatial practices leading to the gradual disappearance of

the medical nearby. The “Internet + Small Medicine Box” model, through technical empowerment, delivers otherwise inaccessible medical resources to pastoral areas, reconstructing the medical resource network. It effectively addresses the spatial challenges of limited mobility for people and resources in pastoral areas under special circumstances, extending the service radius of medical institutions to herder settlements.

4.2. The Return of Cultural Space: Deep Embedding of Mongolian Medicine in Primary Care Nearby

The concept of pluralistic medicine, first proposed by Leslie, explores the coexistence of different medical systems within the same society, aiming to enable freedom to navigate these systems based on disease types and interpretations [27], and this pluralistic medical care essentially presents people with more choices, and is the cultural basis for the reinvention of the medical nearby of the Little Medicine Box of the Prairie.

Inner Mongolia, as an area where ethnic minorities gather, has rich ethnic medical resources, of which Mongolian medicine is an important part. Mongolian medicine, as a typical representative of the medicine of ethnic minorities in northern China, is a unique medical system gradually developed by the Mongolian people through the accumulation of valuable experience in the process of long-term struggle with diseases and the integration of the essence of Chinese medicine and Tibetan medicine, with a variety of diagnostic and therapeutic methods. Mongolian medicine has a deep mass base in Inner Mongolia among Han, Mongolian, Daur, Ewenki and other multi-ethnic people. Similar to traditional Chinese medicine, Mongolian medicine covers treatment methods such as diet, hot compresses, cold compresses, Cerbosin, dermatotherapy, hot springs, bloodletting by acupuncture and massage. Mongolian medicine has two basic worldviews and concepts, namely, a worldview based on the opposition of yin and yang and eternal movement, which holds that the balance of yin and yang is an important condition for the health of a person's body, and that the imbalance of yin and yang is the root cause of disease [28]. On the basis of yin and yang, Mongolian medicine has developed the three roots of “Hei”, “Hira” and “Badakan”. Fire, earth and water correspond to “Hira” and “Badakan” respectively, while “Hei” assists the two, the three together to maintain human health, disease classification and their interactions closely related [29]. Each of the three has its place, and each has its own role to play in becoming the reason for the healthy existence of the human body.

The Little Medicine Box has also been able to move to reintegrate Montessori medicine into the healthcare system in the process of recreating the healthcare nearby. Implementation Program for the Construction of Healthy Villages in Inner Mongolia [30] emphasizes enhancing rural Chinese (Mongolian) medicine services to meet farmers' and herders' needs. It focuses on strengthening Sumu township health centers' “Mongolian Medicine Halls” and “Chinese Medicine Halls”, promoting remote diagnosis, training, and appropriate technologies. Correspondingly, the small medicine boxes for herders are equipped with basic Mongolian medicines. Alxa League pilot areas innovatively launched the “smart medicine box + Mongolian cloud diagnosis” model, enabling family doctors to monitor herders' health data in real time via mobile terminals and remotely consult Mongolian medicine experts to adjust prescriptions.

Notably, in pastoral areas, older herders trust traditional ethnic medicine more than modern biomedicine, making the small medicine box better suited to meet diverse medication needs.

From a medical anthropology perspective, there is no standardization between ethnomedicine and biomedicine systems born from different cultures. As long as a medical practice meets the goal of maintaining physical and mental health, it should be considered effective [31]. The inclusion of Mongolian medicine in the small medicine box not only brings ethnic medicine back to the pastoral medical nearby but also optimizes the pluralistic healthcare landscape of pastoral areas. The small medicine box integrates traditional ethnic medicine with modern healthcare, preserving the nomadic wisdom of “felt room medicine” while using information technology to overcome service challenges in sparsely populated regions.

The representation of space as conceived space, imagined space, mental space, an imagining, planning and designing of spatial practices [32]. After the deconstruction of spatial practices, the representation of space has also shifted. First, cultural spatial carriers have vanished. Before the pandemic, capital and power disrupted the original socio-cultural structure of pastoral areas, pulling them into the tide of developmentalism. In this process, the material carriers and symbols that bore herders' collective memory of ethnic medicine were deconstructed or lost, without establishing new material carriers to sustain the existing cultural imagery [33]. Second, the function of cultural space is weakened [34]. Due to quarantine, people tend to stay indoors, drastically reducing the frequency of collective cultural activities and leading to a crisis of disintegrating and fragmented belonging among herders. Medicine or healthcare systems are embedded in and influenced by their social and cultural contexts, manifesting as individuals' trust and reliance on a particular medical system rather than existing in a social vacuum. Therefore, in reconstructing spatial representations, the small medicine box leverages herders' trust in Mongolian medicine, bringing traditional ethnic medicine back to their nearby and reshaping their imagination of the medical nearby. The small medicine box not only reconnects broken cultural ties but also serves as a symbol of identity and belonging for herders regarding healthcare, ethnic medicine, and their cultural heritage.

4.3. Remodeling of Social Space: The Small Medicine Box Brings “People” Back to the Medical Nearby

Facing shortages of urgently needed medicines, herders spontaneously organized a mutual aid platform for “medicine exchange”, prioritizing families affected by illness. Through this process, herders not only shared medicines but also exchanged medical information, usage experiences, and health tips via social networks. This practice alleviated material shortages caused by the pandemic, strengthened community bonds and trust, and built a closer, more supportive grassroots community, expanding and reinforcing herders' nearby.

In other words, infected herders had a greater need for medicines from the small medicine box, while uninfected herders had surpluses. This simple act of exchanging medicines created a dynamic and pluralistic medicine supply system.

The nearby possesses the three attributes of spatiality, sociality, and emotionality [35], as do medical nearby. The “medicine borrowing” platform built by herders through small medicine boxes reflects the social and emotional nature of the nearby, fostering a community relationship based on mutual aid and trust. In pastoral areas where the spatiality of the medical nearby has been disrupted, medicines and services cannot circulate, and individuals exist in an atomized state, undermining the social and emotional fabric of the nearby. However, herders' spontaneous online “medicine borrowing” model provides a new platform to restore the spatiality of the local medical nearby. Socially, the nearby emphasizes interactive connections [36]. In the context of intersecting spaces, herders leveraged existing social networks and interpersonal relationships to rapidly promote the “medicine borrowing” model, addressing immediate medicine shortages and building a closer social relationship network.

Previously, herders maintained cautious boundaries, with infrequent interactions among neighbors. However, the “medicine borrowing” initiative made everyone realize their interdependence. Emotionally, the mutual support and trust within the nearby allowed herders to experience meaningful human connections. Zimmer particularly emphasized the unique nature of the "stranger," seeing them not as external to the group but as unfixed within it. “The stranger contains the unity of proximity and distance in any relationship between people, reaching a situation that can be summarized briefly: distance within a relationship means that the close person comes from afar, but the stranger means that the distant person is nearby [37].” Therefore, in a sense, the small medicine box, through herders' spontaneous actions, has drawn the group of “strangers” into the medical nearby, restored the space for medicine circulation, and strengthened the social and emotional bonds among community members, successfully recreating the medical nearby in pastoral areas. Although this act was a chance event, its role in rebuilding the medical nearby cannot be overlooked. The recreated medical nearby

boasts greater accessibility and resilience, coupling more people with people, people with things, and people with space.

Representational space materializes subjects' imaginations, perceptions, and ideologies of space through physical materials, codes, and architecture, creating a transformed social space [38]—a key innovation by Lefebvre. Herders' spontaneous medicine exchanges spurred the reconstruction of medical nearby, forming a mutual-aid "medicine borrowing" model that empowers herders with spatial agency. This model, built on social relationships, shortens social distances, turning medical spaces into communities filled with humanistic care.

Amid market economies, nearby interactions in pastoral areas have weakened, with capital and power disrupting traditional social networks. Yet, herders' “medicine borrowing” model redefines representational spaces, reflecting new understandings and needs for medical spaces. It not only addresses resource shortages but also rebuilds community bonds and revives neighborly mutual assistance. This community-building, rooted in humanistic care and emotional ties, challenges the capital- and power-driven spatial production of modern urbanization.

4.4. Extension of Social Space: The Little Medicine Box Facilitates Multi-Stakeholder Collaboration

In reconstructing medical nearby, multi-stakeholder collaboration is crucial. Governments, medical institutions, village doctors, and community residents work together, forming a powerful synergy. Governments, as coordinators, promote technological empowerment through policies and funding; medical institutions deliver quality resources via telemedicine and health education; herders' spontaneous “medicine exchange” actions bridge governments, institutions, and communities, laying the organizational foundation for medical nearby reconstruction. This complementary collaboration enhances healthcare accessibility and quality, fosters community harmony, and injects lasting momentum.

Village doctors play a key role in addressing workforce shortages. They balance agricultural work with primary healthcare, embodying flexibility and resilience. Additionally, returning university students join rural medical teams, bringing new ideas and expertise, diversifying services, and revitalizing traditional-modern healthcare integration.

Spatial production emphasizes human agency. The Little Medicine Box serves not only as a tool for material space innovation but also as a bridge for multi-stakeholder collaboration, extending the social space of pastoral healthcare. Herders, village doctors, hospitals, and governments are integrated into this spatial production, improving resource access, doctor efficiency, and service reach. This model vividly illustrates spatial production theory in rural healthcare practice.

Meanwhile, spatial practice (material), representations of space (cultural), and representational spaces (social) are interlinked. In pastoral healthcare, material practices provide the framework for resource allocation, cultural representations reshape herder identity through Mongolian medicine, and social spaces reconstruct community interactions via mutual aid networks. These dimensions interact dynamically: the material form of the Little Medicine Box embodies cultural symbols, inspiring herder uutual assistance behavior, which in turn reinforces cultural identity, creating a reinforcing loop of material, cultural, and social dimensions.

In conclusion, innovations in material space and the revival of cultural space lay the foundation for equitable resource distribution, while the reshaping of social space strengthens humanistic care and community ties. The Little Medicine Box model bridges medical resources and communities, bringing “people” back into medical nearby and enhancing accessibility and equity. Multi-stakeholder collaboration demonstrates the potential for reconstructing medical nearby. Through the joint efforts of governments, institutions, communities, and residents, a more comprehensive and human-centered medical nearby system can be built, ensuring better health outcomes for all.

5. Conclusion

To address healthcare accessibility and equity challenges in pastoral areas, Inner Mongolia developed the grassland "Little Medicine Box" model, effectively bringing quality medical resources closer to herders and alleviating difficulties in accessing care. Facing the pandemic, multiple stakeholders collaborated to optimize and upgrade the model, achieving reproduction in material, cultural, and social spaces, thereby enhancing the resilience of the pastoral healthcare system.

5.1. Material Space: Integrating and Leveraging Medical Resources

By consolidating decentralized grassroots medical resources and connecting them with higher-level institutions, an integrated healthcare network was established. This prevented spatial fragmentation, extended service coverage, and created a "patient-family doctor-hospital" chain, ensuring accessible and equitable care. Leveraging technology improved service efficiency, shifting from passive treatment to proactive prevention, and empowering "last-mile" services. Enhanced referral systems ensured timely access to specialized care, promoting resource sharing and coordination.

5.2. Cultural Space: Harnessing the Value of Ethnic Medicine

Respecting local cultural traditions and social networks, the model integrated ethnic medical resources into grassroots healthcare. By blending traditional and modern medicine, it created a culturally resonant healthcare space. Training interdisciplinary professionals in both biomedicine and ethnic medicine fostered a cross-cultural diagnostic matrix, combining modern biomedicine, ethnic medicine, and health cultural awareness. This encouraged herders to choose suitable healthcare methods, fostering an inclusive medical culture.

5.3. Social Space: Building Multi-Stakeholder Coordination Mechanisms

Building on material and cultural spaces, the model emphasized reshaping and extending social spaces. Leveraging local social networks, it fostered trust and resource exchange, addressing immediate needs while strengthening community cohesion and reinforcing local "nearby" ties. Efforts included training and recruiting grassroots medical talent and establishing a collaborative "government-medical institutions-community organizations-residents" governance system. This clarified roles, promoted resource sharing, and provided herders with more accessible, efficient, and personalized care.

Finally, the implementation of the "Little Medicine Box" model must remain vigilant against the over-mediation of space. Mobile technologies, while bridging physical and digital spaces, risk eroding boundaries and diminishing the tangible connections essential for effective healthcare delivery [39]. The study finds that in the first space (material), multiple media forms expand perceptions of physical space, with activities increasingly reliant on mobile devices like smartphones. Imaginations of the second space (cultural) are not only based on representations of the first space but also immerse individuals in virtual worlds via mobile internet. Mediatization embedded in the third space (social) facilitates transitions between the first and second spaces, yet the blending of real and virtual environments often leaves individuals in a state of disorientation, conflict, and struggle [40], leading to "spatial chaos".

Spatial production is intertwined with power dynamics, and reconstructing medical nearby essentially deconstructs existing medical spaces while creating new ones, revealing space as a blend of physical, social, cultural, and power elements. In pastoral healthcare, the "Little Medicine Box" achieves spatial reproduction through technological empowerment and cultural integration: government-led telemedicine breaks geographical barriers (spatial practice), the revival of Mongolian medicine reconstructs cultural identity (spatial representation), and herders' self-organized "medicine borrowing" networks reshape grassroots healthcare governance (representational space). This

effectively addresses accessibility and equity issues, laying a foundation for sustainable pastoral healthcare systems and offering valuable insights for other border regions.

6. Summary and Discussion

This paper introduces Biao Xiang's “nearby theory perspective” to propose the concept of “medical nearby”, emphasizing their role in promoting healthcare equity. In border or rural pastoral areas, mere infrastructure development may lead to resource waste and exacerbate urban-rural disparities. Medical nearby prioritize local needs, enabling precise resource allocation through flexible approaches and fostering participatory governance. This enhances grassroots healthcare accessibility and quality, empowers herders' self-organization and cultural identity, and deepens the integration of healthcare and communities.

By integrating the "nearby" theory perspective with Lefebvre's spatial production theory, the paper adds a critical social dimension to spatial analysis while grounding abstract spatial production in everyday practices. In pastoral healthcare, spatial reproduction is achieved through cultural symbols, mutual aid networks, and technological platforms, transforming abstract spaces into tangible local environments. However, challenges such as digital divides, emotional detachment, and over-reliance on telemedicine must be addressed.

Future research should explore region-specific strategies for reconstructing medical nearby and assess their long-term impacts, ensuring the “Little Medicine Box” continues to bridge tradition and modernity, healthcare and culture, and fosters resilient medical networks for sustainable pastoral development

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