Postprint of Analysis on the Promotion of Appropriate Stroke Rehabilitation Technologies in Southern Xinjiang, Xinjiang Uygur Autonomous Region

Authors: Du Yuying, Wang Cailing, Cui Senlin, Lei Lei, Wang Yanping, Song Xueqin, Han Shuqin, Zhang Yanmei, Wang Baolan, Huang Haixia, Chen Ni, YAN Huirong, Li Dong, Zhang Jingjing, Ren Yu, Ren Yu

Date: 2023-06-08T00:00:00+00:00

Abstract

Promoting appropriate health technologies to rural areas and urban communities constitutes an important measure for enhancing the technical level and service capacity of primary-level medical and health institutions. The First Affiliated Hospital of Xinjiang Medical University has implemented appropriate health technology promotion initiatives in the southern Xinjiang region of Xinjiang Uygur Autonomous Region. To evaluate the effectiveness of stroke rehabilitation appropriate technology promotion in the southern Xinjiang region of Xinjiang Uygur Autonomous Region, understand the needs of rehabilitation professionals in this region regarding promotion methods for stroke rehabilitation appropriate technology and their intended goals through participation in such promotion projects, and provide evidence for health administrative departments to further advance rehabilitation appropriate technology promotion initiatives. In July 2018, a multi-stage sampling method was employed with eight deeply impoverished counties in the southern Xinjiang region of Xinjiang Uygur Autonomous Region as sample sources. Rehabilitation professionals from rehabilitation medicine departments of eight people's hospitals in the sample sources, as well as from township health centers and community health service centers under these hospitals' jurisdiction, and from disabled persons' federations, civil affairs systems, and other rehabilitation institutions were selected as study subjects. Following the promotion of stroke rehabilitation appropriate technology, a self-designed questionnaire was administered. Monthly average outpatient volume, inpatient volume, and treatment revenue of rehabilitation medicine departments in people's hospitals before participation (January 1, 2018 to June 30, 2018) and after participation (July 1, 2020 to December 31, 2020) in the stroke rehabilita-

tion appropriate technology promotion project were compared. From July 15, 2018 to June 30, 2020, promotion initiatives were conducted for stroke rehabilitation appropriate technology during acute, subacute, and recovery phases, as well as community and home-based stroke rehabilitation appropriate technology. The promoted technologies encompassed motor function rehabilitation training, functional electrical stimulation, constraint-induced movement therapy (CIMT), mirror therapy, management and rehabilitation training for dysphagia in stroke patients, and activities of daily living training and rehabilitation nursing for stroke patients. A total of 384 valid questionnaires were collected. Among the 384 rehabilitation professionals, 63.3% (243/384) considered the promotion and application of appropriate technology within districts (counties) highly meaningful; 46.1% (177/384) considered the project highly applicable locally; 37.5% (144/384) believed their medical institutions could implement this technology with minor improvements to relevant conditions; 46.9% (180/384) considered the skill operation difficulty level of this appropriate technology promotion project to be easy; through training, 42.2% (162/384) indicated they had some understanding of this technology but required further learning and training. Compared with pre-participation, post-participation in the stroke rehabilitation appropriate technology promotion project showed significant increases in monthly average outpatient volume and monthly average treatment revenue of rehabilitation medicine departments in people's hospitals ($P<0.05$). Regarding promotion methods for stroke rehabilitation appropriate technology, rehabilitation professionals demonstrated the highest demand for practical operation training [63.0% (242/384)] and the lowest demand for teaching ward rounds [19.8% (76/384)]. The proportions of those expecting to enhance operational capability [77.1% (296/384)] and theoretical level [65.6% (252/384)] through participation in the stroke rehabilitation appropriate technology promotion project ranked first and second, respectively. The stroke rehabilitation appropriate technology promotion initiative has achieved remarkable effectiveness. The rehabilitation demand of stroke patients in the southern Xinjiang region is substantial, while the overall rehabilitation medical service capacity in this region fails to meet social needs. A series of measures may be implemented to effectively improve the rehabilitation medical level in the southern Xinjiang region, including strengthening appropriate health technology promotion, encouraging rehabilitation professionals to participate in advanced training, actively developing telemedicine services, and accelerating the construction of medical consortia.

Full Text

Analysis of Appropriate Technology Promotion for Stroke Rehabilitation in Southern Xinjiang of Xinjiang Uygur Autonomous Region

DU Yuying[1], WANG Cailing[2], CUI Senlin[3], LEI Lei[4], WANG Yanping[5], SONG Xueqin[6], HAN Shuqin[7], ZHANG Yanmei[8], WANG Baolan[1], HUANG Haixia[1], CHEN Mi[1], YAN Huirong[1], LI Dong[1],

ZHANG Jingjing[1], REN Yu[1]*

[1]Department of Rehabilitation Medicine, The First Affiliated Hospital of Xinjiang Medical University, Urumqi 830011, China
[2]Department of Rehabilitation Medicine, Shache County People's Hospital, Kashgar Region 844700, China
[3]Department of Rehabilitation Medicine, Shule County People's Hospital, Kashgar Region 844200, China
[4]Department of Rehabilitation Medicine, People's Hospital of Kizilsu Kirgiz Autonomous Prefecture, Atushi City 845350, China
[5]Department of Rehabilitation Medicine, Yecheng County People's Hospital, Kashgar Region 844999, China
[6]Department of Rehabilitation Medicine, People's Hospital of Yingjisha County, Kashgar Region 844599, China
[7]Department of Rehabilitation Medicine, Yuepuhu County People's Hospital, Kashgar Region 844400, China
[8]Department of Rehabilitation Medicine, The People's Hospital of Maigati County, Kashgar Region 844207, China

Corresponding author: REN Yu, Associate chief physician; E-mail: rendy2020@163.com

---

Abstract

Background: Promoting appropriate health technology to rural and urban communities is an important measure to improve the technical level and service capacity of primary care institutions. The First Affiliated Hospital of Xinjiang Medical University has carried out appropriate health technology promotion initiatives in southern Xinjiang of the Xinjiang Uygur Autonomous Region.

Objective: To evaluate the effectiveness of appropriate technology promotion for stroke rehabilitation in southern Xinjiang, understand the needs of rehabilitation workers regarding promotion methods, and identify their goals for participating in such projects, thereby providing evidence for health administrative departments to advance rehabilitation technology promotion.

Methods: In July 2018, rehabilitation workers were selected using multi-stage sampling from rehabilitation medicine departments of 8 people's hospitals, affiliated township health centers, community health centers, disabled persons' federations, civil affairs systems, and other rehabilitation institutions across 8 deeply impoverished counties in southern Xinjiang. After promoting stroke rehabilitation appropriate technology, a self-designed questionnaire was administered. Monthly outpatient volume, hospitalization volume, and treatment income of the rehabilitation medicine departments of the people's hospitals were compared before (January 1, 2018 to June 30, 2018) and after (July 1, 2020 to December 31, 2020) participation in the project.

Results: Appropriate technology promotion for stroke rehabilitation was conducted from July 15, 2018 to June 30, 2020, covering acute, subacute, and recovery phases, as well as community and family rehabilitation. The promotion included motor function rehabilitation training, functional electrical stimulation, constraint-induced movement therapy (CIMT), mirror therapy, dysphagia management and rehabilitation, activities of daily living training, and rehabilitation nursing. A total of 384 valid questionnaires were collected. Among participants, 63.3% (243/384) considered the technology promotion very meaningful within their district/county; 46.1% (177/384) found the project highly applicable locally; 37.5% (144/384) believed their institution could implement the technology with minor improvements; 46.9% (180/384) rated the skill operation difficulty as easy; and 42.2% (162/384) reported needing further learning and training after the initial program. Following participation, the monthly outpatient volume and treatment income of rehabilitation medicine departments increased significantly ($P<0.05$). Regarding promotion methods, practical training was most demanded (63.0%, 242/384), while teaching rounds were least demanded (19.8%, 76/384). The top two goals were improving operational skills (77.1%, 296/384) and theoretical knowledge (65.6%, 252/384).

Conclusion: The stroke rehabilitation appropriate technology promotion achieved significant results. There is enormous rehabilitation demand among stroke patients in southern Xinjiang, yet current service capacity falls far short. Recommendations include strengthening appropriate technology promotion, encouraging staff training and further education, developing telehealth services, and accelerating medical consortium construction to improve rehabilitation care levels.

Keywords: Stroke; Rehabilitation medicine; Appropriate technology; Promotion; Xinjiang

Introduction

Stroke is a major chronic non-communicable disease threatening national health in China and the leading cause of death and disability among adults [1]. The 2019 Global Burden of Disease Study showed that between 1990 and 2019, the annual number of new stroke patients and stroke-related deaths increased substantially. As the world's largest developing country with approximately one-fifth of the global population, China has the highest number of stroke survivors worldwide [2]. With socioeconomic development and increasing life expectancy, the proportion of elderly individuals and the incidence of chronic diseases and physical disabilities have risen annually, leading to growing demand for rehabilitation services, particularly among stroke patients [3-6]. However, shortages of rehabilitation personnel and equipment in primary care institutions have resulted in weak service provision capacity, creating an increasingly prominent contradiction between demand and supply [7-9]. The 2006 Second National

Sample Survey on Disability revealed that among Xinjiang's 1.069 million persons with disabilities, physical disabilities were most common, affecting 365,000 individuals [10]. Studies have shown ethnic differences in stroke prevalence among Xinjiang residents aged $ $50 years, with higher rates in Uygur populations than in Han populations [11]. Xinjiang's rehabilitation medicine started relatively late, lacks professional therapists, and shows uneven diagnostic and technical capabilities across regions. The inability of hospitals to meet growing rehabilitation demands is particularly acute in southern Xinjiang, where Uygur populations predominate, especially in the four prefectures of southern Xinjiang.

Promoting appropriate rehabilitation technology is crucial for improving technical capacity at primary care institutions and alleviating the supply-demand contradiction. Our institution has conducted stroke rehabilitation appropriate technology promotion in impoverished areas of the four southern Xinjiang prefectures through theoretical instruction, teaching rounds, and practical training, deepening local practitioners' understanding and standardizing stroke rehabilitation treatment. This study evaluates the promotion's effectiveness and explores rehabilitation workers' needs and goals to inform future training and provide evidence for health administrative departments.

Methods

Study Participants

In July 2018, we used multi-stage sampling to select rehabilitation workers from eight deeply impoverished counties in southern Xinjiang. Participants included rehabilitation staff from rehabilitation medicine departments of eight people's hospitals, their affiliated township health centers and community health centers, disabled persons' federations, civil affairs systems, and other rehabilitation institutions. After promoting stroke rehabilitation appropriate technology, we administered a self-designed questionnaire. Exclusion criteria were: (1) informed but refusing participation, and (2) absence due to training, meetings, or leave during the promotion or survey period.

Implementation of Stroke Rehabilitation Appropriate Technology Promotion

The promotion project ran from July 15, 2018 to June 30, 2020, covering appropriate technologies for acute, subacute, and recovery phases, plus community and family rehabilitation. Specific content included: acute phase rehabilitation assessment, positioning, exercise therapy, functional electrical stimulation, and swallowing training; recovery phase rehabilitation assessment, occupational training, speech and swallowing training, gait training, and activities of daily living training; and community/home rehabilitation assessment, constraint-induced movement therapy (CIMT), mirror therapy, activities of

daily living training, assistive device adaptation, and home environment modification. The teaching team comprised two chief physicians, two associate chief physicians, one chief therapist, two associate chief therapists, two supervising therapists, and one supervising nurse. Promotion methods included theoretical instruction, practical training, teaching rounds, case discussions, and Q&A sessions. Implementation steps involved: practical training after theoretical instruction; teaching rounds including patient diagnosis, assessment, treatment planning, demonstration, health education, and guidance; organized discussions and Q&A for difficult cases; assessment and evaluation; and continued on-site training for those who did not pass.

Survey Instrument

The self-designed questionnaire covered: (1) general demographics (position, title, education, gender, age, work experience, institution, ethnicity); (2) project evaluation (significance of local promotion, local applicability, institutional readiness, operational difficulty, mastery level after training); (3) needs for promotion methods (theoretical instruction, practical training, teaching rounds, case discussions); and (4) goals for participation (improving clinical diagnosis/treatment, theoretical knowledge, research capacity, operational skills).

Survey Process and Quality Control

Before the survey, investigators were trained on questionnaire content, purpose, communication skills, and completion methods. A pilot survey tested design rationality and training effectiveness. Participants were informed about the purpose and provided consent. Questionnaires were self-administered under investigator guidance. After completion, two investigators checked for completeness and authenticity. Data were double-entered and reviewed by a separate researcher.

Statistical Analysis

SPSS 25.0 was used for analysis. Normally distributed continuous data were expressed as ($\bar{x}\pm s$). Categorical data were presented as frequencies and percentages. Paired t-tests compared monthly outpatient volume, hospitalization volume, and treatment income before (January 1–June 30, 2018) and after (July 1–December 31, 2020) participation. $P<0.05$ indicated statistical significance.

Results

Participant Characteristics

We collected 384 valid questionnaires. Among participants, 81 (21.1%) were physicians, 177 (46.1%) were therapists, and 126 (32.8%) were nurses. Primary

titles accounted for 302 (78.6%), intermediate for 64 (16.7%), and senior for 18 (4.7%). Educational background was junior college for 272 (70.8%) and bachelor's degree for 112 (29.2%). There were 94 males (24.5%) and 290 females (75.5%). Mean age was 34.6$\pm$7.2$years, and mean work experience was 7.8\pm\$5.5$ years. Most participants worked in people's hospitals (300, 78.1%), followed by township health centers (54, 14.1%) and community health centers (30, 7.8%). Ethnic distribution included Han (224, 58.3%), Uygur (99, 25.8%), Hui (20, 5.2%), Kazakh (15, 3.9%), Mongolian (12, 3.1%), Kirgiz (4, 1.0%), Tajik (4, 1.0%), Uzbek (3, 0.8%), and Manchu (3, 0.8%).

Evaluation of Stroke Rehabilitation Appropriate Technology Promotion

Among 384 rehabilitation workers, 63.3% (243/384) considered the technology promotion very meaningful within their district/county, and 32.8% (126/384) found it meaningful. Regarding local applicability, 46.1% (177/384) rated the project as very suitable, and 41.4% (159/384) as suitable. For institutional readiness, 51.6% (198/384) believed their institution fully met requirements, while 37.5% (144/384) thought minor improvements would suffice. Concerning operational difficulty, 12.5% (48/384) rated it very easy, and 46.9% (180/384) rated it easy. After training, 1.6% (6/384) reported complete mastery, 56.3% (216/384) basic mastery, and 42.2% (162/384) indicated they understood the technology but needed further learning and training (see Table 1).

Needs for Promotion Methods

Rehabilitation workers expressed highest demand for practical training (63.0%, 242/384) and lowest demand for teaching rounds (19.8%, 76/384) (see Table 2).

Goals for Participation

The top two goals were improving operational skills (77.1%, 296/384) and theoretical knowledge (65.6%, 252/384) (see Table 3).

Comparison of Departmental Outcomes

Among the eight people's hospitals, one rehabilitation department was temporarily converted to an infectious disease clinic in 2020 due to COVID-19 and was excluded from analysis. Results showed that after participating in the promotion project, seven rehabilitation medicine departments had significantly increased monthly outpatient volume and treatment income compared with pre-participation levels ($P<0.05$) (see Table 4).

Discussion

This study demonstrates that stroke rehabilitation appropriate technology promotion achieved notable results. Among 384 rehabilitation workers, 63.3% considered the technology promotion very meaningful within their district/county, 46.1% found it highly applicable locally, 37.5% believed their institution could implement it with minor improvements, and 42.2% indicated need for further training. Several factors contributed to this success: (1) multi-stage sampling ensured representative samples; (2) pre-implementation surveys assessed local service capacity, community needs, and workers' actual requirements; (3) stroke's high incidence, disability, mortality, recurrence, and economic burden [1] created strong demand and motivation; and (4) the combination of theoretical and practical training provided hands-on guidance, immediate error correction, and enhanced training quality and effectiveness.

Standardized appropriate technology training is crucial for improving primary care rehabilitation standards, reducing disability, enhancing quality of life, and easing family and social burdens [1]. However, a single training session cannot sustainably improve rehabilitation capacity in southern Xinjiang. We propose four recommendations:

(1) Enhanced Training. A survey of Urumqi community rehabilitation workers found 97.8% desired future training, with 39.1% preferring one-week programs [18]. Our study showed only 1.6% reported complete mastery after training, while 42.2% needed further learning. Extended 3–6 month training programs are effective for capacity building [19]. Workers preferred practical training and theoretical instruction over case discussions and teaching rounds, prioritizing operational skills, theoretical knowledge, clinical competence, and research capacity. We recommend hands-on mentorship to rapidly master techniques and systematic theoretical knowledge. Senior experts should adopt a "mentor system," using clinical cases to teach new theories and technologies, organizing regular case discussions, teaching rounds, and research training to comprehensively improve participants' clinical, teaching, and research abilities [19]. Since rehabilitation involves multidisciplinary teams, we recommend group training for physicians, therapists, and nurses to jointly develop rehabilitation plans and present cases, thereby enhancing team capacity.

(2) Utilizing Remote Education and Telemedicine. Online platforms enable remote interactive training unconstrained by time and space, facilitating review and solving the problem of heavy clinical workloads preventing attendance. Hybrid online-offline training expands coverage and improves efficiency. Telemedicine addresses unequal resource distribution, providing convenient access to high-quality expert care in remote areas [20]. 5G technology facilitates rapid image retrieval, remote consultation, health information sharing, and system interoperability. Primary institutions can invite senior experts for remote consultations on challenging cases, clarifying problems and solutions while building local capacity.

(3) Strengthening Medical Consortium Construction. Medical consortiums can promote tiered diagnosis and two-way referral, enhancing primary rehabilitation capacity. After establishing a consortium: (1) lower-level staff can regularly learn specialized techniques (e.g., balloon dilation for dysphagia, videofluoroscopic swallowing studies); (2) senior institutions should regularly hold targeted lectures online and offline; (3) consortium members should achieve "four sharings"—expert, clinical, research, and teaching resources; (4) senior experts should regularly practice in community facilities or conduct supervisory visits with follow-up on quality improvement; (5) internal quality control committees should conduct regular assessments to improve service standards [21]. Using tertiary hospitals as anchors, medical communities and specialty alliances can bring quality resources to primary levels, improving rehabilitation services and achieving county-wide coordinated development [22].

(4) National Policy Support. Rehabilitation development requires policy support and a sound service system. Recent policies have provided strong guarantees [23-26], but incomplete two-way talent flow mechanisms and differential insurance payment policies hinder vertical integration and sustainable cooperation. Recommendations include: (1) expanding insurance coverage for rehabilitation services and increasing policy and financial support; (2) advancing high-quality family doctor contract services with personalized "rehabilitation value-added packages" [27]; (3) including rehabilitation therapy in workload statistics to motivate primary care staff [28]; (4) recruiting high-level rehabilitation talent; (5) encouraging continuing education; and (6) stimulating research and innovation [21].

This study shows that stroke rehabilitation appropriate technology promotion achieved clear results. Southern Xinjiang has enormous rehabilitation demand, but primary care capacity remains weak. We recommend strengthening appropriate technology promotion, encouraging training and further education, developing telehealth, and accelerating medical consortium construction to improve rehabilitation standards. This study did not observe long-term effects and had questionnaire limitations. Future research should improve questionnaires and investigate long-term outcomes to validate our findings.

References

[1] WANG Longde, PENG Bin, ZHANG Hongqi, et al. Summary of the "China Stroke Prevention and Treatment Report 2020"[J]. Chinese Journal of Cerebrovascular Diseases, 2022, 19(2): 136-144. DOI: 10.3969/j.issn.1672-5921.2022.02.011.

[2] SANG S, CHU C, ZHANG T, et al. The global burden of disease attributable to ambient fine particulate matter in 204 countries and territories, 1990-2019: a systematic analysis of the Global Burden of Disease Study 2019[J]. Ecotoxicol Environ Saf, 2022, 238: 113588. DOI: 10.1016/j.ecoenv.2022.113588.

[3] REN Guangyuan, ZHOU Juzhi, SUN Tongda, et al. Study on the Demand for Rehabilitation Therapy Technology Professionals and Countermeasures for Specialty Setup[J]. China Higher Medical Education, 2016, 30(8): 40-41. DOI: 10.3969/j.issn.1002-1701.2016.08.020.

[4] QI Fang, AI Kun, ZHANG Jianjia, et al. Current Status and Reflections on the Development of Sports Rehabilitation Majors in Chinese Universities[J]. Journal of Hunan University of Chinese Medicine, 2018, 38(8): 965-968. DOI: 10.3969/j.issn.1674-070X.2018.08.029.

[5] WANG Yiran, DAI Wanwei, SU Binbin, et al. Assessment of Rehabilitation Service Demand and Analysis of Supply-Demand Gap Causes in China[J]. Chinese Journal of Rehabilitation Theory and Practice, 2022, 28(6): 725-729. DOI: 10.3969/j.issn.1006-9771.2022.06.015.

[6] CHEN Zhaohui, LI Mengxing, ZHANG Hui, et al. Exploration of a "Skill-Based" Talent Training Model for Rehabilitation Therapy Specialty[J]. Journal of Anhui University of Chinese Medicine, 2020, 39(2): 87-89. DOI: 10.3969/j.issn.2095-7246.2020.02.023.

[7] PAN Feng. Reaching Down to the Grassroots is a Key Factor in Chronic Disease Rehabilitation Management—An Interview with Professor Xu Guangqing, Director of the Rehabilitation Medicine Department of Beijing Tiantan Hospital[J]. China Medical Herald, 2019, 16(16): 1-3.

[8] MENG Xianhong. Analysis of the Current Situation and Causes of Grassroots Community Rehabilitation—Based on a Survey of Eight Communities in Beijing from a Social Welfare Perspective[J]. Journal of Liaoning Educational Administration Institute, 2018, 35(03): 91-96.

[9] FANG Mengsha, XIA Wenbin, JIANG Bo. Effect of Pathway-Based Aerobic Exercise Health Education on Rehabilitation Outcomes and Quality of Life in Stroke Recovery Patients[J]. China Primary Medicine, 2020, 27(13): 1651-1654. DOI: 10.3760/cma.j.issn.1008-6706.2020.13.027.

[10] CHEN Ni, LI Chao, WANG Baolan, et al. Survey on the Supply and Demand Status of Rehabilitation Services for Physically Disabled Persons in Urumqi, Xinjiang[J]. Chinese Journal of Rehabilitation, 2019, 34(7): 368-371. DOI: 10.3870/zgkf.2019.07.008.

[11] HAO Chenguang. Epidemiological Survey of Stroke and Vascular Dementia in Uygur and Han Populations Aged $ $50 Years in Xinjiang[D]. Urumqi: Xinjiang Medical University, 2008.

[12] KONG Lingying, LI Yuantong, WANG Mingyue, et al. Study on Farmers' Livelihood Capital and Livelihood Strategies Under Project-Based Poverty Alleviation—Based on Survey Data from Shule County, Xinjiang[J]. Chinese Journal of Agricultural Resources and Regional Planning, 2021, 42(4): 134-142. DOI: 10.7621/cjarrp.1005-9121.20210415.

[13] WANG Han. Study on the Application Effect of Poverty Alleviation Funds in Western China from the Perspective of Rural Revitalization—A Case Study of Akto County, a Deeply Impoverished Area in Xinjiang[J]. Rural Economy and Science-Technology, 2020, 31(17): 118-119. DOI: 10.3969/j.issn.1007-7103.2020.17.047.

[14] LI Dong, YOU Yanan, MA Changfa, et al. Analysis of Spatial Poverty Differentiation Characteristics and Influencing Factors of Oasis Towns in Arid Areas—A Case Study of Three Prefectures in Southern Xinjiang[J]. World Regional Studies, 2018, 27(3): 86-98. DOI: 10.3969/j.issn.1004-9479.2018.03.009.

[15] ZHAO Bing, ZHOU Xuan, CHEN Nan, et al. Current Status and Development of Hierarchical Rehabilitation Diagnosis and Treatment Models at Home and Abroad[J]. Chinese Journal of Physical Medicine and Rehabilitation, 2020, 42(11): 1038-1040. DOI: 10.3760/cma.j.issn.0254-1424.2020.11.021.

[16] YAN Tiebin. Stroke Rehabilitation in Hierarchical Diagnosis and Treatment[J]. Chinese Journal of Rehabilitation, 2016, 31(3): 163-164. DOI: 10.3870/j.issn.1001-2001.2016.03.001.

[17] ZHANG Liangzhi, CHANG Xuehui, LUO Ka. Analysis of Intervention Effect and Generalizability of Community Rehabilitation Appropriate Technology on Stroke Patients with Wind-Phlegm-Stasis Syndrome in Recovery Period[J]. Chinese General Practice, 2016, 19(22): 2734-2737. DOI: 10.3969/j.issn.1007-9572.2016.22.025.

[18] REN Yu, LIU Ling, HUANG Haixia. Survey on Rehabilitation Education Needs of Community Rehabilitation Personnel in Urumqi[J]. Continuing Medical Education, 2014, 28(11): 116-118. DOI: 10.3969/J.ISSN.1004-6763.2014.11.061.

[19] GUO Siyuan, CHEN Shuying, YIN Ying. Survey and Analysis of Training Needs for Advanced Study Physicians Under the Background of High-Quality Development of Public Hospitals[J]. China Continuing Medical Education, 2022, 14(20): 97-102. DOI: 10.3969/j.issn.1674-9308.

[20] ZHAO Zhiling, CHEN Jihong, ZHANG Haina, et al. Investigation Report on the Teaching Effect of Group-Based Teaching by Large Hospitals on Primary Hospitals[J]. Chinese Journal of Integrated Traditional and Western Medicine in Intensive and Critical Care, 2018, 25(2): 212-214. DOI: 10.3969/j.issn.1008-9691.2018.02.023.

[21] ZHANG Hongqian, FENG Jing, ZANG Chuanyan, et al. Challenges and Reflections on the Development of Stroke Rehabilitation Medical Consortiums in China[J]. Modern Hospitals, 2021, 21(1): 12-14. DOI: 10.3969/j.issn.1671-332X.2021.01.004.

[22] WANG Jianlin, YANG Weibin, YANG Jindong, et al. Research on the Construction of the Medical Consortium Information Platform of the First Hospital

of Lanzhou University[J]. China Digital Medicine, 2018, 13(6): 95-97. DOI: 10.3969/j.issn.1673-7571.2018.06.033.

[23] ZHANG Jiarui, ZHANG Shu'e, YIN Dong, et al. Policy Text Analysis of Incentivizing High-Quality Health Resources to Sink to Grassroots Levels from the Perspective of Policy Tools[J]. Chinese General Practice, 2019, 22(34): 4190-4196. DOI: 10.12114/j.issn.1007-9572.2019.00.446.

[24] LIN Yaqiang, XU Meng. Experiencing Disability and Rehabilitation: Society's Response to Disability[J]. Medicine and Philosophy, 2020, 41(3): 11-16. DOI: 10.12014/j.issn.1002-0772.2020.03.03.

[25] QIU Zhuoying, GUO Jianxun, LI Lun, et al. WHO Rehabilitation Guidelines "Rehabilitation in Health Service Systems": Background, Theoretical Framework and Methods, Main Content, and Implementation[J]. Chinese Journal of Rehabilitation Theory and Practice, 2020, 26(1): 16-20. DOI: 10.3969/j.issn.1006-9771.2020.01.003.

[26] YIN Donghua. Policy System and Prospects of Rehabilitation Assistive Device Industry in China[J]. China Civil Affairs, 2019, 26(21): 49-50. DOI: 10.3969/j.issn.1002-4441.2019.21.019.

[27] BAI Min, MA Teng, ZHANG Ling, et al. Study on the Application Effect of "Family Therapist Contract" Service Model on Home Rehabilitation of Stroke Patients with Hemiplegia[J]. Chinese Journal of Rehabilitation, 2021, 36(2): 109-112. DOI: 10.3870/zgkf.2021.02.010.

[28] BO Yunque, GONG Chao, ZHANG Ronghui, et al. Performance Management of Primary Medical Institutions Based on Standardized Workload[J]. Chinese Primary Health Care, 2020, 34(4): 4-7. DOI: 10.3969/j.issn.1001-568X.2020.04.0002.

Author Contributions: WANG Baolan and REN Yu conceptualized the study and designed the methodology; WANG Baolan, REN Yu, HUANG Haixia, CHEN Mi, YAN Huirong, LI Dong, and ZHANG Jingjing implemented the study; REN Yu, WANG Cailing, CUI Senlin, LEI Lei, WANG Yanping, SONG Xueqin, HAN Shuqin, and ZHANG Yanmei collected data; DU Yuying and REN Yu performed statistical analysis, drafted the manuscript, and revised it.

Conflicts of Interest: None declared.

Funding: National Key R&D Program of China (2018YFC2002302); Xinjiang Uygur Autonomous Region Natural Science Foundation Joint Fund Project (2016D01C327); Xinjiang Uygur Autonomous Region Health Poverty Alleviation Outstanding Appropriate Technology Promotion Project (SYTG-Y201928).

Received: February 11, 2022; **Revised:** December 30, 2022; **Accepted:** [Not specified]