

The Supply-demand Contradiction and Optimization Strategies of Rural Elderly Care Services in Nanbu County

Hanfeng Zeng¹, Tingting Liu¹, Mingqin Ye^{1*}, Qing Tang^{2*}

¹ College of Agriculture, Guangxi University, Nanning, China

² Guangxi Forestry Research Institute (GFRI), Nanning, China

*Correspondence: Mingqin Ye, Qing Tang

Received: 16 July 2026; Accepted: 23 August 2026; Published: 10 September 2026

Abstract:

With the acceleration of population aging and changes in rural family structure, the traditional family elderly care function continues to weaken, and the county-level rural elderly care service system is facing severe challenges. This article takes the southern county of Sichuan Province as a case study, using a combination of questionnaire survey (N=276) and in-depth interviews (N=18), based on the new public service theory and demand hierarchy theory, to systematically analyze the current situation of rural elderly care service system from the two dimensions of supply and demand. The results show that there are only 19.2 beds per thousand elderly people on the supply side, and the allocation of nursing staff is less than 50% of the national standard. The coverage rate of medical and nursing services is only 10% -20%, while the coverage rate of cultural and entertainment services reaches 85%; The proportion of empty nest/solitary living on the demand side is 52.5%, the prevalence of chronic diseases is 73.6%, 61.6% of elderly people have a monthly income below 1000 yuan, and 60% feel lonely. The core contradiction is the structural mismatch between supply and demand and the lack of coordination among multiple entities. Based on this, it is proposed to establish a service model of "regionalization+mobile inspection+time banking", adhere to the principles of government support and universal low compensation, and strengthen funding, talent, and regulatory guarantees. The study provides empirical evidence for optimizing rural elderly care service policies in western counties.

Keywords:

Rural Elderly Care Service System, Supply-demand Contradiction, Southern County, Optimization Measures

1. Introduction

The aging process of China's population continues to accelerate. By the end of 2023, the population aged 65 and above has exceeded 14% of the total population, and the degree of aging in rural areas is generally higher than that in cities. At the same time, there is a large-scale outflow of young and middle-aged labor force, and the rural family structure is becoming increasingly smaller and empty nest. The traditional family's elderly care function is constantly weakening. However, the construction of rural elderly care service system is seriously lagging behind,

especially in underdeveloped counties in the west, facing the dual dilemma of “getting old before getting rich” and weak financial capacity. In 2024, the No. 1 central document of the Central Government clearly proposed the requirements of “promoting the construction of regional elderly care service centers according to local conditions” and “regular and accurate assistance”. However, there is a lack of sufficient empirical research on how to transform these policy spirits into operational county plans.

The research on the elderly care service system in foreign countries started earlier, forming a model characterized by community care and diversified supply [1]. Domestic scholars have explored institutional design [5], service supply [6], and demand characteristics [4], but existing research mostly focuses on macro policies or a single dimension, and systematic quantitative analysis of supply and demand at the county level is still weak, especially lacking in-depth case studies on underdeveloped areas in the western region.

Southern County in Sichuan Province is located in the northeast of Sichuan Province and is a typical western agricultural county. Its local fiscal revenue is less than 1 billion yuan, and the per capita disposable income of rural residents is about 15000 yuan [17]. More than 60% of young and middle-aged people go out to work [16], and the aging rate exceeds 23% [18]. There is a large gap in the supply of elderly care services, which is representative of the region. This article takes the new public service theory and the hierarchy of needs theory as the analytical framework, and through questionnaire surveys and in-depth interviews, depicts the supply base and demand characteristics of rural elderly care services in southern counties, diagnoses core problems, and proposes optimization paths that are suitable for local realities, providing reference for policy-making in similar regions.

2. Current Situation Analysis

2.1. Basic Overview

Nanbu County is located in the northeast of Sichuan Province and is a typical underdeveloped agricultural county in the central and western regions of China. In 2024, the general public budget revenue of the county is less than 1 billion yuan, and the per capita disposable income of rural residents is about 15000 yuan, which is lower than the national average level. More than 60% of young and middle-aged people in the county go out for work all year round, and the phenomenon of rural hollowing out is serious. As of the end of 2024, there are approximately 123000 elderly people aged 60 and above in the county, accounting for over 23% of the total population. Among them, elderly people aged 80 and above account for 19% of the elderly population, and it is expected to exceed 25% by 2030. There are a total of 42 elderly care institutions and facilities in the county (including 26 day care centers and 16 village level mutual aid elderly care points), with less than 23 beds per thousand elderly people (only 19.2 beds in some remote towns), far below the national “14th Five Year Plan” target of 40 beds per thousand elderly people. The coverage rate of village level elderly care service facilities is only 14.7%, and it is concentrated in county towns and central towns, with extremely low coverage in remote mountainous areas [14].

2.2. Current Supply and Demand Situation

2.2.1. Supply side

The total number of facilities and beds is insufficient and idle. The county's elderly care institutions are mainly township nursing homes and private small-scale nursing homes, with less than 30% of professional nursing beds. Although 400 new beds will be added in 2024, the supply gap is still widening due to the rapid aging trend. It is worth noting that the utilization rate of some completed day care centers is less than 50%, mainly due to the disconnect between early planning and demand, lack of operating funds (annual gap of about 5 million yuan [10]), and single service content.

There is an extreme shortage of human resources. According to the national standard of 5 nursing staff per 50 elderly people [9], the actual configuration of rural elderly care institutions in southern counties is only half of the standard, and some remote institutions have less than 3 full-time nursing staff. The average monthly salary of employees is less than 3000 yuan [15], with prominent characteristics of aging and low education. There are very few people holding the "Occupational Skill Level Certificate for Elderly Care Workers", and professional training is almost blank.

The service structure is severely imbalanced. From the perspective of the configuration of community elderly care service facilities, the coverage rate of entertainment (chess and card tables and chairs, television) is as high as 85%, while meal assistance services are only 35%, professional rehabilitation nursing is 15%, chronic disease management guidance is 20%, and bath assistance services are only 10% (see Table 1). The supply side presents a homogeneous feature of "emphasizing culture and entertainment, neglecting care", and there is a serious lack of essential medical and nursing services.

Table 1. Statistical Table of Functional Configuration and Coverage of Grassroots Elderly Care Service Facilities in Southern Counties

Classification of functional modules	Specific hardware/service facility types	Objective coverage rate
Basic entertainment category	Chess and card tables and chairs, television/viewing equipment	85%
Life care category	Daytime rest beds, basic heating equipment	60%
Life assistance category	Independent aging friendly meal assistance cafeteria/kitchen	35%
Health monitoring category	Blood pressure/blood glucose meter, height and weight scale	50%
Professional Rehabilitation	Rehabilitation therapy bed, limb training equipment	15%
Deep care category	Aging friendly bathing room and accessible bathing equipment	10%

The foundation of smart elderly care is weak. The proportion of elderly people aged 60 and above in the county who can independently and proficiently use smartphones is less than 20%, and the household rate of smart hardware is less than 5%. Poor rural network infrastructure, significant digital divide among the elderly, and weak payment ability make it difficult to promote smart elderly care in the short term.

Taking a village in Shengzhong Town, Nanbu County as an example, there are 237 elderly people over 60 years old in the village, including 68 elderly people living alone and 32 disabled or semi disabled people. There are no formal elderly care facilities in the village, only one "senior activity room" renovated from an old elementary school, with an area of less than 40 square meters. The facilities only have a table tennis table and a few chairs, and are locked all year round. Villagers reported that they have nowhere to move around and can only wait for their children to come

back from other places when they get sick. Similar villages account for over 60% in the southern counties.

2.2.2. Demand side

Based on 276 valid questionnaires (covering 6 townships and 18 administrative villages, with an effective response rate of 92%), the demand profile of the elderly is as follows:

Firstly, population structure and residential status. 60-69 years old account for 31.5%, 70-79 years old account for 37.7%, and 80 years old and above account for 30.8%. The proportion of living alone is 27.9%, living with spouse is 24.6% (total empty nest/living alone is 52.5%), and living with children is only 34.1%. The trend of empty nest has led to the structural disintegration of traditional family elderly care functions (as investigated in this study).

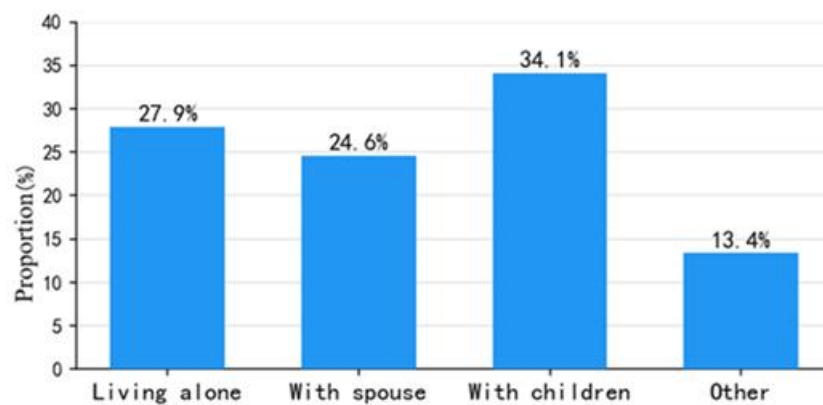


Figure 1. Distribution of Residential Structure of Elderly Households Interviewed in Rural Areas of Southern County.

Secondly, health status and payment ability. The prevalence rate of chronic diseases is as high as 73.6% (58% of hypertension, 24% of diabetes) [19], and 45.3% of those who can take care of themselves and those who can't take care of themselves (this research survey). 61.6% of elderly people have a monthly income below 1000 yuan, 68.5% are highly dependent on their children for support, and only 51.4% use basic pension as their main source of income. The extremely weak ability to pay determines that elderly care services must adhere to the principle of universal and low compensation.

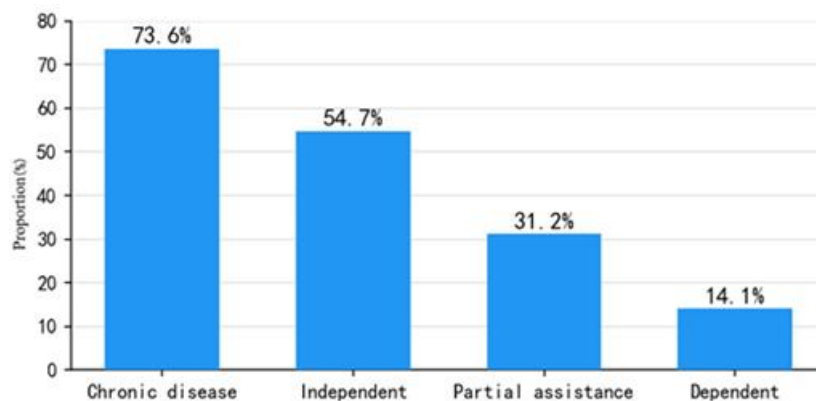


Figure 2. Column chart of health status statistics of elderly people in rural areas.

Thirdly, preference for service demand. The most urgent needs are chronic disease management and medication guidance (35%), regular health check ups (30%), and home visits by family doctors (25%). The need for spiritual comfort (68.3%) and loneliness (60% of elderly people experience low mood) are prominent, and over 40% of elderly people have a willingness to participate in society, but the actual participation rate is less than 15%. In terms of smart elderly care, there is a potential demand for “one click call for help” and “video consultation”, but they are constrained by the digital divide.

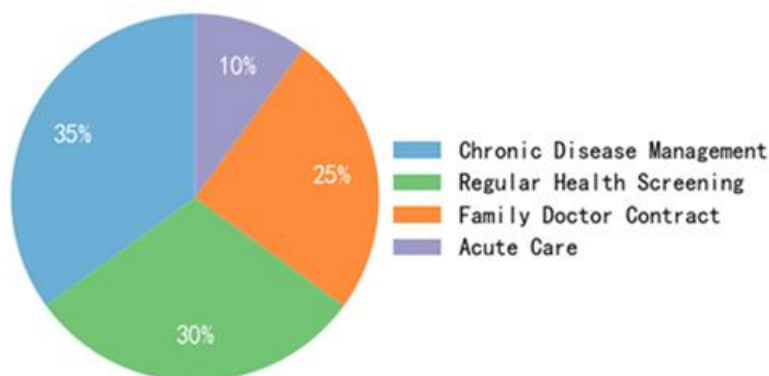


Figure 3. *Distribution and Satisfaction Analysis of Medical Needs.*

In an interview, a 75 year old single person named Zhang (whose spouse passed away and whose son works in Guangdong) said, “I am most afraid of getting sick. Last time I had high blood pressure, I lay in bed for two days without anyone knowing, and it was only after my neighbor brought me food that I realized it. If someone comes regularly to measure my blood pressure and chat with me, I will rest in peace when I die.” Another 83 year old disabled person named Li (taken care of by an equally elderly spouse) said, “I want to take a shower, but my spouse can’t touch me”. It’s been six months since I took a proper shower These cases truly reflect the triple dilemma of “difficult medical treatment, psychological loneliness, and lack of care” in rural elderly care.

2.2.3. Supply and Demand Comparison

Comparing the supply coverage and demand intensity of key service projects (Table 2), it was found that the demand intensity for chronic disease management is high (35%), while the supply is only 20%; The demand for professional rehabilitation nursing is high, with a supply of only 15%; The demand for bath assistance services is moderate, with a supply of only 10%; However, there is an oversupply of chess and card entertainment (85%). The structural mismatch of “insufficient medical care services urgently needed by the elderly and low utilization rate of cultural and recreational services provided at the grassroots level” has led to the coexistence of idle and scarce facilities.

Summary: The total supply of rural elderly care services in southern counties is insufficient, the structure is imbalanced, there is a shortage of talent, and it is difficult to implement smart elderly care; The demand side presents characteristics such as aging, empty nest, high incidence of chronic diseases, weak payment ability, and widespread loneliness. There is not only a quantitative gap between supply and demand, but also a serious structural mismatch.

3. Existing Problems

3.1. Structural mismatch between supply and demand

There is a clear “scissors gap” between the supply and demand of rural elderly care services in Nanbu County. On the one hand, the supply of medical and health services such as chronic disease management, rehabilitation nursing, and bathing assistance that elderly people urgently need is seriously insufficient, with a coverage rate of only 10% to 20%; On the other hand, the relatively sufficient supply of shallow entertainment services such as chess and card games, TV viewing, etc. has limited demand intensity, resulting in a utilization rate of less than 50% for some facilities. The structural mismatch of ‘urgently needed cannot be supplied, and what is supplied is not needed’ has resulted in limited elderly care resources not being able to achieve their intended benefits. At the same time, the shortage of total elderly care beds in institutions and the idle of some day care centers reflect the disconnect between early planning and the actual needs of the elderly, as well as the problem of homogenized service content and lack of precise matching.

Deep root cause analysis: In addition to insufficient total resources, the deeper reason is the problem of supply decision-making mechanism. At present, the construction of elderly care service facilities is mostly “assigned tasks” by superiors, and townships are “taking medicine according to orders”, lacking research on the real needs of local elderly people. For example, the higher authorities require each township to establish a day care center, but do not consider whether local elderly people are willing to go or not. The resulting centers are often located next to township governments, far from remote villages, and require elderly people to walk for 2 hours, leading to the phenomenon of ‘building without using’. This “top-down” supply model is disconnected from the “bottom-up” actual demand, which is the institutional root of structural dislocation.

3.2. Lack of Multi Subject Collaboration

From the perspective of the new public service theory, the government should play the roles of “service provider” and “promoter” in the elderly care service system, coordinating the participation of the market, society, and families. However, the supply of rural elderly care services in southern counties has long been dominated by government single investment, with less than 15% participation of social capital [20], almost no social organizations, and a volunteer system has not yet been established. The responsibilities and boundaries of various departments within the government (civil affairs, finance, health, human resources and social security) are unclear, and there is a lack of overall coordination in policy implementation, resulting in scattered funds, duplicated resources, or service blind spots coexisting. In addition, the function of family elderly care has been rapidly weakened due to the outflow of labor force, and the community’s capacity to undertake it has not yet been formed. There is a lack of effective collaborative mechanisms among multiple entities, making it difficult to form a joint force.

Specific manifestations of the lack of collaborative mechanisms: Taking the connection between medical care and elderly care as an example, the health department is responsible for signing contracts with family doctors. However, although the signing rate is high (advertised as 90%), the actual service is merely a formality - village doctors come to their homes once a quarter to measure blood

pressure, record it, and then leave without any medication guidance or health intervention. The civil affairs department is responsible for elderly care facilities, but the two do not communicate with each other, resulting in many day care centers being built at the village head, while family doctor service points are located in township health centers, and the elderly cannot enjoy the convenience of “medical and elderly care integration”. Each department is responsible for its own department, which greatly reduces the effectiveness of policies.

3.3. Dual Shortcomings of Talent and Funds

In terms of talent: the number of elderly care personnel is less than 50% of the national standard, and there are very few certified professionals; The employees are generally rural left behind women or young elderly, with low cultural level, older age, and lack of basic medical nursing and emergency skills; A monthly salary of less than 3000 yuan leads to extremely low job attractiveness and high staff turnover rate [15]. In terms of funding, the proportion of county-level fiscal pension budget is less than 3%, and it mainly flows to county towns and central towns, with meager investment in remote rural areas; The annual operating capital gap is about 5 million yuan, which results in the inability of existing facilities to operate normally; Social capital is deterred due to long return cycles and policy uncertainty. Talents and funds are mutually constrained, forming a vicious cycle of “lack of money → inability to recruit people → poor service quality → even more lack of money”, which has become a key bottleneck restricting the upgrading of the system.

Quantitative analysis of vicious cycle: Taking a nursing home in a certain township as an example, with 50 designated beds, only 28 people were actually occupied, resulting in an occupancy rate of 56%. The reason is not that there is no one living there, but that there are only 2 nursing staff (5 according to the national standard), which cannot accommodate disabled elderly people. Two nursing staff have an average monthly salary of 2200 yuan per person, while the local supermarket tallyman has a salary of 3000 yuan, resulting in the loss of three nursing staff within a year. The hospital wants to increase salaries, but the financial allocation is fixed and lacks autonomy. Result: Shortage of personnel → Afraid to hire disabled elderly → Vacant beds → Low income → No money to hire. This case clearly demonstrates the closed loop of mutual restraint between funds and talents.

4. Optimization Measures

4.1 Model Innovation: Building a Service Chain of “Regionalization+Mobile Inspection+Time Banking”

In response to the reality of scattered villages and low facility utilization in southern counties, the traditional layout based on administrative villages is broken. 3-5 adjacent administrative villages are divided into a “elderly care service area”, and regional comprehensive elderly care service centers are established to provide mobile meal assistance, patrol medical care, and centralized care services to surrounding villages. To solve the problem of “difficulty in seeking medical treatment”, a mobile medical service team composed of general practitioners, nurses, and public health personnel will be established, carrying portable devices to regularly enter the village to carry out blood pressure and blood sugar monitoring, chronic disease medication guidance, and traditional Chinese medicine rehabilitation therapy, achieving “door-to-door medical care”. In response to mental loneliness and insufficient professional manpower, we

will promote the “time bank” mutual assistance for elderly care. The village committee will set up management stations to encourage young and healthy elderly people to provide services for the elderly and disabled, and store the duration. In the future, they can exchange for equal time services or daily necessities to make up for the professional nursing gap with a low-cost mutual assistance model.

4.2. Mechanism optimization: equal emphasis on government support and social participation

Given the extremely weak payment ability of the elderly (61.6% have a monthly income below 1000 yuan), it is necessary to adhere to the principle of “government support+universal low compensation”. At the government level, the basic pension payment standards will be raised, and “red, yellow, green” graded and precise subsidies will be implemented for elderly disabled people from extremely poor and low-income families. Elderly service consumption vouchers will be issued to enhance the actual purchasing power of the elderly. Market level: Attract social capital through public and private construction, tax incentives, low interest loans, etc., and prioritize exploring basic universal elderly care institutions in central towns with high population concentration. At the social level, cultivate elderly associations and volunteer teams, regularly carry out public welfare activities such as accompanying chats and health lectures, and enrich the spiritual life of the elderly.

4.3. Institutional guarantee: Three pronged approach of funding, talent, and supervision

Financial Security: County level finance will establish a dynamic investment mechanism linked to the growth of the elderly population, gradually increasing the proportion of elderly care service expenditures to over 1.5%; Actively strive for transfer payments from higher authorities and establish a special subsidy fund for rural elderly care services. Talent guarantee: Short term training courses for elderly care will be offered at vocational and technical schools in Nanchong City, targeting local left behind women and training no less than 100 certified nursing staff annually; Provide a monthly job subsidy of 300-500 yuan to certified personnel who have worked continuously in township and below institutions for at least one year. Regulatory guarantee: The county civil affairs bureau takes the lead in jointly conducting service quality evaluations with health, market supervision and other departments every quarter. Service coverage, facility utilization, and elderly satisfaction are included in performance evaluations, and the results are linked to financial subsidies. Unqualified institutions are required to rectify or replace operating entities within a specified period of time.

5. Conclusions

This study, through empirical investigation of southern counties in Sichuan Province, systematically reveals the core contradictions of the rural elderly care service system in underdeveloped counties in western China, including insufficient beds, talent shortage, imbalanced service structure, and difficulty in implementing smart elderly care on the supply side; The demand side presents characteristics such as empty nest, high incidence of chronic diseases, weak payment ability, and widespread loneliness. The structural mismatch between supply and demand and the lack of coordination among multiple entities are the fundamental reasons that constrain the sustainable development of the system. In response to the above issues,

it is proposed to establish an aging friendly service model of “regionalization+mobile visits+time banking”, adhere to the principles of government support and universal low compensation, and strengthen institutional guarantees from three aspects: funding, talent, and supervision. The study provides empirical evidence and feasible paths for implementing rural elderly care service policies in southern counties and similar western counties. In the future, further tracking surveys can be conducted to evaluate the cost-effectiveness of different intervention measures and explore the specific application of digital technology in narrowing the “digital divide” in rural elderly care.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

References

- [1] Maslow, A.H. A Theory of Human Motivation. *Psychological Review*, 1943, 50(4), 370-396.
- [2] Denhardt, R.B.; Denhardt, J.V. The New Public Service: Serving Rather than Steering. *Public Administration Review*, 2000, 60(6), 549-559.
- [3] Du, P. The Current Situation and Development Direction of Rural Elderly Care Services in China. *China Social Work*, 2018, 26, 22-23.
- [4] Liang, X.Y. Research on the Current Situation and Influencing Factors of Home based Elderly Care Service Demand for Rural Elderly. *Village Committee Director*, 2023, 01, 98-101.
- [5] Lu, J.H.; Guo, F.C.; Chen, J.H, etc Design of Rural Elderly Care System in the New Era: Historical Context, Current Challenges, and Development Path. *Journal of China Agricultural University (Social Sciences Edition)*, 2021, 38(04), 82-92
- [6] Zheng, J.Y. Research on the Rural Medical and Elderly Care Integrated Service System under the Rural Revitalization Strategy. *Guangxi Social Sciences*, 2021, 11, 145-150
- [7] The State Council 14th Five Year Plan for the Development of National Aging Industry and Elderly Care Service System. 2021.
- [8] National Bureau of Statistics. 2023 China Population Aging Data Report. Beijing: National Bureau of Statistics, 2023.
- [9] Ministry of Civil Affairs Standard for staffing of nursing staff in elderly care institutions. 2019.
- [10] Southern County Finance Bureau Report on Social Security Expenditure in Nanbu County. 2022.
- [11] Southern County Finance Bureau Financial Expenditure Report on Elderly Care Services in Nanbu County. 2024.

- [12]Southern County Civil Affairs Bureau Yearbook of Civil Affairs Work in Nanbu County. 2023.
- [13]Southern County Civil Affairs Bureau Statistics of Community Elderly Care Service Facilities in Nanbu County. 2023.
- [14]Southern County Civil Affairs Bureau Statistical ledger of elderly care service institutions in Nanbu County. 2024
- [15]Nanbu County Human Resources and Social Security Bureau Salary Statistics of Elderly Care Service Personnel in Nanbu County. 2022.
- [16]Statistics Bureau of Nanbu County. Labor force migration statistics of Nanbu County. 2023.
- [17]Southern County Bureau of Statistics Income Statistics of Rural Residents in Nanbu County. 2023.
- [18]Southern County Bureau of Statistics Statistical Table of Elderly Population in Different Age Groups in Southern Sichuan Counties. 2024.
- [19]Southern County Health Bureau Statistical data on the health status of elderly population in Nanbu County. 2024.
- [20]Southern County Investment Promotion Bureau Investment Environment Report of Nanbu County. 2021.



© 2026 by the author(s); licensee International Technology and Science Publications (ITS), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (<http://creativecommons.org/licenses/by/4.0/>)