

An empirical study on the influencing factors of community music participation of elderly groups in Chengdu city

Funan Wang^{1*}, Abdol Ali Khatibi²,  Jacqueline Tham³

¹Chengdu Vocational University of The Arts, Conservatory of music, Chengdu, Sichuan Province, 611433, China; yy17744345223@163.com (F.W.).

^{2,3}Management and Science University, Postgraduate Center, Selangor Darul Ehsan, Shah Alam, 40100, Malaysia; alik@msu.edu.my (A.A.K.) jacqueline@msu.edu.my (J.T.)

Abstract: As aging continues to deepen in Chengdu, community music activities, as an important vehicle for promoting the psychological health and social connection of older adults, and their influencing factors have become the focus of healthy aging research. Based on Maslow's hierarchy of needs theory and social-ecological system theory, this study conducted a questionnaire survey on a random sample of 480 older adults to systematically analyze the influence of individual needs, community environment, and social support on community music participation. The study found that: (1) demand-driven stratification: physiological needs and safety needs are the main driving forces for participation, while respect and self-actualization needs are seriously insufficient, leading to shallow participation behavior; (2) imbalance of environmental resources: the accessibility of community facilities, diversity of activities, and professional guidance are notably insufficient, especially in remote suburban communities; (3) fragile support system: family support is the core driving force, but the sustainability of activities is constrained by gaps in government funding and corporate sponsorship. The study proposes a synergistic path of “demand-environment-resource” optimization: activating high-level demand through layered activity design, breaking resource constraints through policy innovation and digital empowerment, and promoting the transformation of community music from “entertainment” to “value co-creation.” The theoretical value of this study is to build a localized framework for explaining cultural participation of the elderly and to provide a practical basis for decision-making on the construction of an “all-age friendly community” and the inheritance of NGT in Chengdu.

Keywords: *Community music participation, Maslow's hierarchy of needs theory, Older adults, Social-ecological systems theory.*

1. Introduction

China is accelerating into a deeply aging society. Chengdu, as a populous city in western China with a total population of 20 million, has entered the stage of super-aging society in advance, with the proportion of elderly people over 60 years old reaching 21.94% [1]. The Chengdu Bureau of Culture, Radio, Television and Tourism states in the “Implementation Opinions of the Chengdu Municipal People's Government on Supporting the Development of the Music Industry and Promoting the Construction of the International Music Capital” that during the 14th Five-Year Plan period, it will continue to intensify publicity on the construction of the international music capital of Chengdu and the development of the music industry, carry out promotional and marketing activities to enhance the attractiveness of the city's music and culture and to stimulate public participation in music life. and influence of the city's music culture, and to stimulate the public's enthusiasm for participating in music life [2].

Community is an important link between individuals and society, and music as a form of expression of deep human emotions can touch people's hearts [3]. Community music activities, as an important part of community cultural activities, have received widespread attention because of its integration of artistry, socialization and participation [2].

Established studies have explored multiple dimensions of influences on music participation in older communities. At the individual demand level, Zhang [4] analyzed the current situation of community music development in Xuzhou, China, and concluded that there is a deviation between the supply of community outreach music and residents' demand. At the community level, Xie and Guo [5] found that community infrastructure and teacher strength directly affect the quality of community music education and residents' participation. Some scholars also pointed out that while community music participation has received much attention as an important form of cultural education, it still faces many problems [6]. In their study, Fang, et al. [7] showed that there were problems with the imbalance in the male-female ratio of participants in community music, as well as the large age-gender deviation [8]. In the residents' interest survey, it was found that 69.4% of the residents were interested in community music and cultural activities, with interest as the motivation for participation. It was also found that many residents were motivated to participate in community music activities to gain benefits. It was also found that residents' participation in community due activities is also often constrained by their leisure time, and under the intersection of a variety of factors such as daily scheduling, willingness to participate, and physical condition, it is difficult for residents to ensure that they can continue to participate in relevant music education activities [4]. The content of community music activities is single, the proportion of universal participation is not high, the elderly are the main participants in community music activities, and young adults rarely participate in community music activities [9].

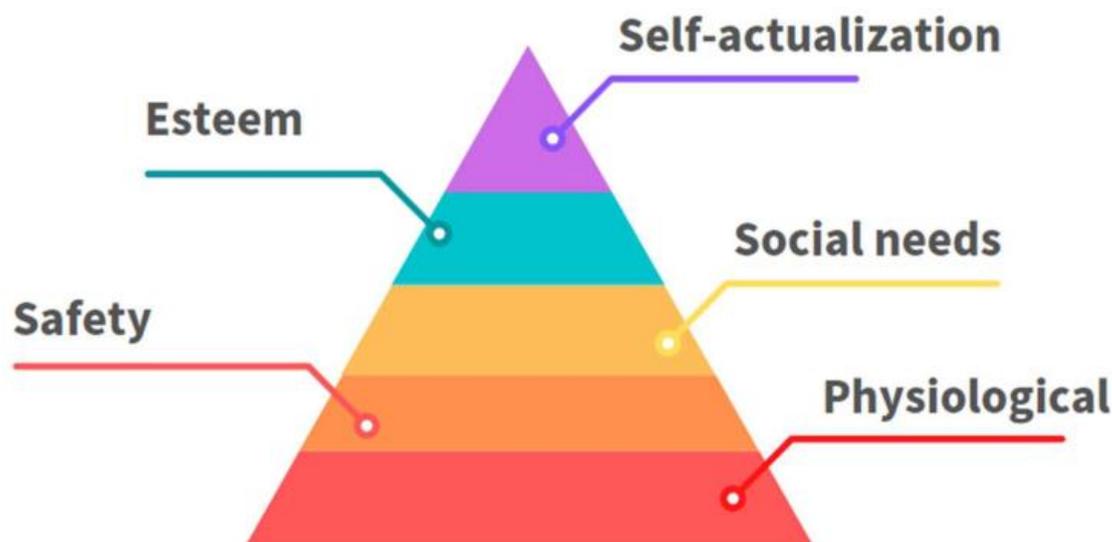
At present, community activities are constantly developing in exploration, and have not yet formed a complete system [10]. However, in recent years, Chengdu is striving to build an international "music capital", and constantly strengthening the integration and development of music and the community, and community music activities have become a very prominent phenomenon [11]. By studying the factors affecting the community music participation of older adults in Chengdu, it is of great significance to promote the development of community music in Chengdu and other regions of the world.

2. Literature Review

2.1. Theoretical Review

2.1.1. Maslow's Hierarchy of Needs Theory

American psychologist Abraham Maslow proposed the famous Hierarchy of Needs Theory, also known as the Hierarchy of Basic Needs Theory, in 1943 in his article *The Theory of Human Motivation*, which is one of the important theories in behavioral science. This theory divides human needs into five levels, which are listed in descending order of priority, including physiological needs, safety needs, social belonging needs, respect needs, and self-actualization needs [12]. This five-stage model can be categorized into deficit needs and growth needs as shown in Figure 1 [13].



Maslow's Hierarchy of Needs Theory Pyramid

Figure 1.
Maslow's Hierarchy of Need Theory Pyramid.
Source: Guo [13].

Li [11] study, supported by Maslow's hierarchy of needs theory, showed that music activities promote community social interaction and enhance a sense of belonging. Based on Maslow's hierarchy of needs theory, Chen, et al. [2] study explored how older adults' participation in community activities satisfies their physiological, safety, social, respect, and self-actualization needs, and emphasized the importance of need satisfaction in enhancing older adults' quality of life and social value. Chen and Chen [1] study, supported by Maslow's hierarchy of needs theory, showed that older adults can meet satisfy basic health needs by improving physical coordination and regulating sleep quality through music activities. By using Maslow's hierarchy of needs theory as a theoretical guide, Ma [14] study showed that music alleviates negative emotions such as anxiety and loneliness and provides a sense of psychological stability, community concerts enhance the sense of order in life through regular activities, and music activities combined with natural landscape creation significantly reduce depression and anxiety levels, which can satisfy the participants' inner security needs.

2.1.2. Social Ecological Model

The social-ecological model is a framework theory that originated from Bronfenbrenner's social-ecological theory, which is mainly used to explain the interaction between individuals and the multi-level social environment, and is used as a theoretical framework to study people's development throughout the life cycle [15]. The microsystem in the social-ecological model is the most central system, which mainly refers to the most direct environment an individual comes into contact with, i.e., the individual's family; the mesosystem refers to the interrelationships that occur in the interactions of various microsystems, including peers, units, schools, etc.; the exosystem refers to the systems that do not have a direct contact with an individual, but have an impact on the individual's development; the macrosystem refers to the culture or system of a society; and the long-term system is also referred to as the time dimension, which is also known as the time dimension. system, also known as the time dimension, mainly refers to the results of individuals' choices of different environments at different stages of growth, along with the continuous accumulation of knowledge and experience Zhao, et al.

[16]. Qin [17] using a social ecological model, explained that the factors affecting physical activity of community residents are complex. In addition to the influence of the physical environment, it is also affected by the role of the social environment, and even more by individual behavioral awareness attitudes, motivation and other psychological factors, to improve the physical activity of community residents, to cultivate a healthy lifestyle among residents, based on the social-ecological model to explore the factors affecting the physical activity of community residents, for improving the physical activity of community residents, to build a healthy community has an important practical significance. Under the guidance of the social-ecological model, the study summarized and analyzed the influencing factors of physical activity behaviors of middle-aged community residents, and the results showed that: personal factors are the primary factors affecting the physical activity behaviors of middle-aged community residents in Chengdu City, and social and environmental factors have a certain role in influencing changes in the physical activity behaviors of the residents, among which, the policy environment is an important driving force to promote the participation of physical activity of middle-aged community residents [15].

2.2. Synthesis of Empirical Evidence

2.2.1. The Impact of Individual Needs on Community Music Participation

Chen, et al. [2] in exploring the main factors affecting public participation in community activities research, selected the residents of Shenzhen City as the object of observation, through a questionnaire survey of 500 residents of Shenzhen, the results of the study found that the functional and recreational value of community activities, social norms and community identity of the community residents can be positively significant prediction of the behavioral willingness of residents to participate in community activities. Zhang [4] through the analysis of the current situation of community music development in Xuzhou, China, concluded that there is a deviation between the supply of community out of district music and the demand of the residents, at present, Xuzhou City involves the community music to carry out the form of square dance, opera type organizations, choirs, senior university, etc., the main coverage of the population is the middle-aged and elderly groups, the content of education is mainly based on the study of vocal music, dance learning, instrumental learning, followed by the study of music The basic theory of music and culture and music appreciation are fewer, and the contents are relatively single, and there is no education content that can cover all age and gender groups, which makes the music education needs of some groups of people not satisfied.

Lin [8] found that community music could not meet the individual differences and diversified needs of residents, and that each resident as an individual is bound to have individual differences and diverse needs. The individual differences of residents are the most basic criteria for community activities. However, according to the results of the survey, most of the community staff hold the attitude that providing services to residents is the completion of the work, and seldom understand the needs of the residents in depth. Although it is impossible to realize the needs of the residents in their entirety, they should reasonably take into account the needs of the majority of the residents, and then refine and adjust the requirements of the residents who have special needs, and satisfy them in a selective manner.

2.2.2. Impact of Community Environment on Community Music Participation

In their study, Chen and Chen [1] found that the lack of teachers remains a challenge, and many community music teachers are mainly part-time music teachers from neighboring schools, and the lack of full-time teachers restricts the in-depth development of community music education. Improving the community environment, including upgrading the teaching facilities and teachers' strengths, is crucial for promoting residents' active participation in community music activities. Studies have shown that the degree of improvement of the community environment directly affects the motivation and depth of residents' participation in community music, and that complete teaching facilities and adequate teacher strength are key factors in promoting the quality of community music.

Lin [8] study shows that many current community environments still have many problems that constrain the development of community music activities and resident participation, and that the level of construction of community environments is closely related to the motivation of residents to participate in community music activities. The infrastructure of the community environment and the degree of cooperation between staff members play a key role in the successful implementation of music activities, while at the same time, the professional competence and service attitude of community music teachers also become key factors. The study pointed out that the lack of adequate interaction between community staff and residents resulted in insufficient understanding of the benefits and music and cultural activities offered by the community. This communication barrier significantly reduced residents' motivation to participate. At the same time, community staff have a weak sense of service, inadequate communication skills, and even problems with the concepts of purpose, power, and fame.

2.2.3. Impact of Social Support on Community Music Participation

Wei [18] study suggests that policy support plays a key role in promoting community-based older people's participation in music. Although government departments are not direct participants or administrators, they can be excellent supervisors. Relevant departments should formulate detailed regulations and norms to encourage older people to participate in community music culture. By implementing an incentive mechanism to recognize the active participation of older people, more older people can be motivated to devote themselves to community music.

Policy support plays an important role in promoting community music participation. Xie and Guo [5] study points out that the adoption of the "government + market" model, in which the government and market capital jointly participate in the construction of community services, can effectively improve the level of comprehensive community services. Through the introduction of high-quality services, to meet the multi-level needs of residents, improve community supporting facilities, and enhance the quality of life of residents. This model not only reduces the financial pressure on the government, but also provides residents with high-quality services and products. Therefore, the policy supports the improvement of the community music environment by guiding market forces to participate in community construction, and promotes residents' active participation in community music.

Lin [8] showed that the current music and cultural activities in many communities are mainly based on government-oriented content and lack a perfect community music and cultural system, which leads to a single activity and makes it difficult to comprehensively improve residents' music and cultural literacy. Therefore, it is particularly important to improve the community music and culture system, enrich the content of activities, and meet the diversified needs of residents. Fei [10] showed in his study that the policy factors of local policies, national policies can become a direct positive impact on youth sports participation.

2.3. Review of the Literature

Existing research has three limitations: there is a clear disciplinary divide in the exploration of factors influencing community music participation: music pedagogy focuses on individual needs Huang and Guo [6] sociology focuses on the community environment Xie and Guo [5] and public administration scholars pay attention to policy resources [8]. Secondly, individual motivation and environmental support are viewed separately, without the support of social-ecological system theory and integrated analysis under the framework; thirdly, regional cultural characteristics are neglected, and it is unclear how the tension between the tradition of "slow life" and the impact of modernization in Chengdu can regulate the efficacy of music participation.

3. Research Design

The research methodology used in this study is quantitative research. Data collection was conducted through questionnaires. The questionnaire covered personal needs, community environment, social support and community music participation questionnaire to collect sample data from different

districts in Chengdu City. Taking elderly people in Chengdu City as the research object, the random sampling method was used to carry out online distribution of electronic questionnaires for the research study, 504 electronic questionnaires were distributed from 8 communities, and after excluding invalid questionnaires, the number of valid questionnaires was 480. The research idea is shown in Figure 2.

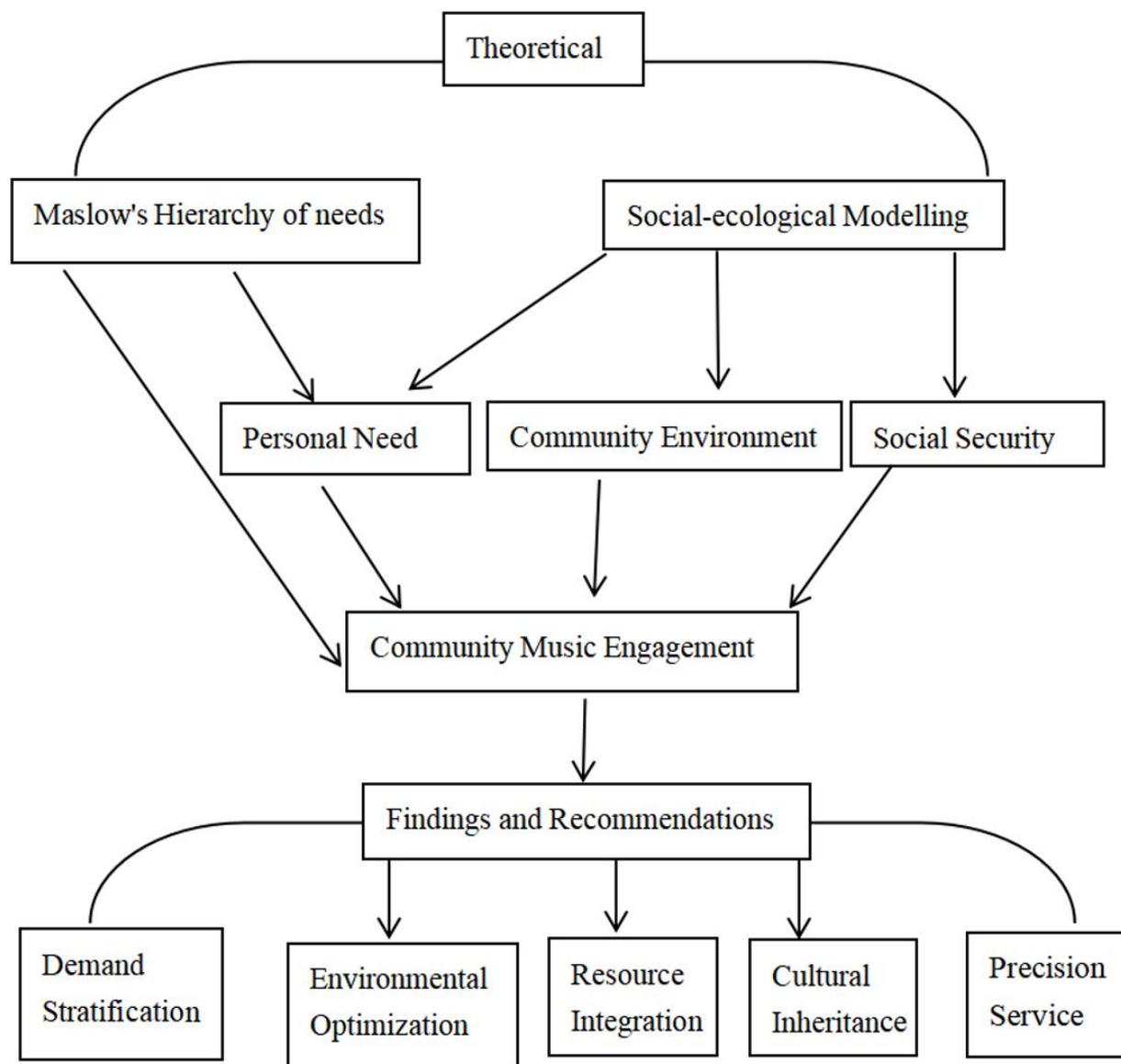


Figure 2.
Research framework diagram.

4. Data Analysis

The following table summarizes the basic information of the older adults who participated in the questionnaire survey of this study, as shown in Table 1.

Table 1.
Statistics on Basic Personal Information Data.

Basic information on the population	Categorisation	Proportions	Quorum
Sex	Man	47%	226
	Woman	53%	254
Age	60-69	52%	250
	70-79	38%	182
	80 Or More	10%	48
Residence	Live Alone	22%	106
	Cohabitation with Spouse	58%	278
	Cohabitation with Children	15%	72
	Else	5%	24
Community Type	Centre of Urban Area	40%	192
	Peri-urban	45%	216
	Outer Suburbs	15%	72

The gender ratio is relatively balanced, with women slightly outnumbering men, and attention needs to be paid to the differentiated provision of female-preferred activities and men's needs. The main group is the younger elderly (60-69 years old accounts for more than half of the total), and the design of activities may focus on skill learning. Residential situation: 58% of the participants live with their spouses, and family support may be a motivation for participation; the group living alone needs to be paid attention to, 22% of the elderly living alone are at a higher risk of loneliness, and need to enhance their social connection through community music activities. The highest proportion of suburban samples may reflect accelerated ageing in the suburbs as a result of expanding urbanization; there is a significant gap in resources in the far suburbs: only 15% of the sample is from the far suburbs, but they have the lowest ratings for facilities and financial support.

4.1. Data Analysis of Personal Needs

In personal needs, the survey was conducted through five options in each of the following five questions and the data obtained is shown in Table 2.

Table 2.
Statistics on Personal Needs Data.

Title	Not at all	Falling short	Usual	In keeping with	Fully in line with
Physiological Needs	8%	12%	25%	40%	15%
Security Needs	5%	10%	20%	45%	20%
Belonging Needs	10%	15%	30%	35%	10%
Respect needs	15%	20%	35%	25%	5%
Self-actualization Needs	20%	25%	30%	20%	5%

In the first question Physiological Needs, the combined data of Fully Compliant and Compliant was 55%, indicating that more than half of the older adults identified health needs as a motivation for participation. There were also 45% of older adults who had a weak perception of health needs. Through data correlation, older adults with high physiological need identification were more likely to participate in activities, but for shorter durations. This suggests that health needs drive initial participation, but it is difficult to maintain deep engagement and needs to be combined with senior needs to improve sustainability.

In the second question on safety needs, there was a combined total of 65% of data that was fully consistent and consistent, suggesting that music activities have a significant effect on emotional

regulation. At the same time, there are also 15%, which may be social avoidance or activity format mismatch groups. By correlating the data, the subjective experience of those who met their safety needs was more positive (60% “agree + strongly agree” for emotional engagement), and the level of recognition of safety needs was higher among the elderly living alone (22%) than among other groups (e.g., those who lived with their spouses). This suggests that music activities are effective in alleviating loneliness, especially for the elderly living alone, and have mental health intervention value.

In the third question of belonging needs, the data of fully conforming and conforming together amounted to 45%, indicating that nearly half of the elderly gained a sense of belonging through music activities. The general percentage of 30% is the highest, reflecting that social connection stays at a shallow level.

Through data correlation: participants with high belongingness needs preferred diverse forms, while those with low belongingness needs mostly chose single activities. This shows that social needs drive form diversity, but activity design needs to be optimized to enhance group cohesion.

In the fourth question of respect needs, the data of fully conforming and conforming together amounted to 30%, which was significantly lower than the first three needs, indicating a low level of respect need fulfillment. Through data correlation: the proportion of those with satisfied respect needs who participated in playing musical instruments (30%) was significantly higher than that of the other groups (15%), and the subjective sense of meaning was stronger (Agree Strongly Agree 50%). The need for skill demonstration (e.g., musical instruments) is the key to enhancing the sense of value of participation, and professional guidance support needs to be strengthened.

In Question 5, Self-Actualization Needs, the combined data of Fully Conforming and Conforming is 25%, the lowest of the five categories, indicating that high-level needs are seriously unmet. The total of 45% of the data of completely non-compliance and non-conformity reflects that the design of activities is biased towards entertainment and lacks space for personal growth. Through data correlation, low self-actualization needs were associated with low frequency of participation (only 5% on 4 or more occasions) and high dropout rates (25% non-participation), especially in far-flung communities (self-actualization needs identity <10%). Inactivated high-level needs are a major barrier to sustained participation, and need to be stimulated through creative activities (e.g., music creation workshops).

The data from the above five dimensions show that older people's participation in community music is characterized by a needs disconnect in terms of personal needs. Low-level physiological and safety are the core drivers of older people's participation in community music, especially for groups with strong needs for health management and emotional regulation. The mid-level belonging needs of some older adults participating in community music are initially realized in social functions. And high-level respect and self-actualization needs are seriously missing.

4.2. Community Environmental Data Analysis

In the community environment data, the survey was conducted through five options for each of the following five questions, and the data obtained is shown in Table 3.

Table 3.
Community Environmental Data Statistics.

Title	Not at all	Falling short	Usual	In keeping with	Fully in line with
Accessibility	15%	20%	30%	25%	10%
Diversity of Activities	18%	22%	35%	20%	5%
Organisational Support	20%	25%	30%	20%	5%
Timing Reasonableness	10%	15%	40%	25%	10%
Professional Guidance	25%	30%	30%	12%	3%

In the first question on accessibility of facilities, the combined total of 35% for fully compliant and compliant indicates that only one-third of the communities basically meet the facility requirements, while the combined total of 35% for fully non-compliant and non-compliant reflects that the problem of

missing or aging facilities is common, especially in the remote suburban communities. In the second question on diversity of activities, a total of 25% of the data between fully compliant and compliant indicates a serious homogenization of activity forms; a total of 40% of the data between completely non-compliant and non-compliant highlights the dominance of traditional activities (e.g., square dancing) and the scarcity of innovative forms (e.g., adaptations of Sichuan opera and digital music). In the third question on organizational support, the total number of fully compliant and compliant figures is 25%, indicating weak organizational management capacity; the total number of completely non-compliant and non-compliant figures is 45%, reflecting the community's lack of dedicated staff or volunteer teams. In the fourth question on the reasonableness of living time, 35% of the data fully met and 35% of the data met, but 40% of the data still thought that the schedule was “average”, reflecting a lack of flexibility; 25% of the data fully did not meet and 25% of the data did not meet, which might be in conflict with the working day schedule. In Question 5, Professional Guidance, 15% of the data totaled Fully Compliant and Compliant, reflecting a lack of professional resources, while 55% of the data totaled Fully Non-Compliant and Non-Compliant, reflecting an unmet need for skill enhancement.

Correlating the data: the frequency of participation was significantly higher (60%) and longer in central urban areas with high facility ratings than in distant suburbs (25%). Activity diversity was positively correlated with participation form, with 55% participation in dance in the central city compared to 30% in the far suburbs, but the senior group still preferred a single form. Lack of professional guidance resulted in low participation in skill-based activities (30% for musical instruments), and only 5% of those with self-actualization needs were provided with guidance.

The correlation of the above five dimensions with related data demonstrated that facility accessibility and activity diversity were the primary barriers limiting participation, especially for the remote and senior age groups. Weak professional guidance and organizational support lead to low quality and poor continuity of activities. Low quality rings lead to shallow participation, and insufficient facilities lead to short participation hours; singular activities lead to form preference focused on choral singing and low participation in skills and creativity; and lack of guidance leads to insufficient fulfillment of high-level needs, resulting in a loss of in-depth participation.

4.3. Analysis of Social Support Data

In the social support data, it was investigated through five options in each of the following five questions and the data obtained is shown in Table 4.

Table 4.
Statistics on Social Support Data.

Title	Not at all	Falling short	Usual	In keeping with	Fully in line with
Family support	8%	12%	25%	40%	15%
Government funding	25%	30%	30%	12%	3%
Volunteer assistance	20%	25%	35%	15%	5%
Information Release	15%	20%	35%	25%	5%
Corporate sponsorship	30%	35%	25%	8%	2%

In the first question on family support, the combination of very adequate and adequate data of 55% indicates that most older persons receive family support, while the combination of inadequate and very inadequate data of 20% may be related to older persons living alone (22%) or intergenerational alienation. In the second question on government funding, the combination of very adequate and adequate data totaled 15%, indicating that government funding support is severely inadequate. Insufficient and very insufficient data totaled 55%, with the problem being particularly acute in far-flung communities (15%). In the third question on volunteer assistance, the combined total of very sufficient and sufficient data is 20%, indicating a lack of volunteer resources, while the combined total of insufficient and very insufficient data is 45%, reflecting a weak community mobilization capacity. In the fourth question on information dissemination, the combined data of very sufficient and sufficient is 30%,

while 35% still think that information dissemination is insufficient. 50% of the elderly over 80 years old are unfamiliar with WeChat groups and rely on offline notification. In the fifth question on corporate sponsorship, the data of very sufficient vs. sufficient totaled 10%, and corporate sponsorship was extremely scarce. Insufficient and very insufficient data combined 65%, reflecting the lack of commercialized cooperation mechanism.

Correlating the data: older adults with high family support who live with their children (15%) participate more frequently and spousal supporters are more willing to try new forms, remote communities with insufficient government funding have low frequency of activities, and the lack of corporate sponsorship leads to old equipment.

The correlation of the above five dimensions with the related data shows an imbalance in the hierarchy of support for older people's participation in community music, with family support dominating, and the family being the core driver of older people's participation, but older people who live alone or are empty nesters relying on community support. Government and corporate support is weak, with both government funding and corporate sponsorship low, resulting in an unsustainable supply of resources. Regional resource imbalance: government funding and corporate sponsorship are better in the central city than in the far suburbs, while the frequency and form of activities in the far suburban communities are homogenized due to a lack of resources.

4.4. Analysis of Community Music Participation Data

In the community music participation data, the survey was conducted through five options for each of the following five questions, and the data obtained is shown in Table 5.

Table 5.
Statistics on Community Music Participation Data.

Title	Strongly disagree	Disagree	Usual	Agree with	Couldn't agree more
Frequency of Objective Participation/month	0th 25%	1th 30%	2th 25%	3th 15%	>4th 5%
Objective Participation hours/month	<30 minutes 40%	30minutes-1 hour 35%	1-2 hours 20%	2-3hours 15%	>3hours 3%
Diversity of Forms of Participation (multiple choice)	Chorus 65%	Musical instruments 30%	Doctrinal 25%	Choreography 45%	Else 15%
Subjective Experience - Emotional Engagement	5%	10%	25%	45%	15%
Subjective Experience-perception of meaning	8%	12%	30%	40%	10%

The data distribution of the objective participation frequency in the first question correlates with the related data to show that there is zero participation (25%): reflecting the lack of coverage of community music activities or the existence of barriers to participation; low-frequency participation participants are predominantly shallow, and the activities are not sufficiently appealing or sustained. High-frequency participation, concentrated in the central city and interest groups. (The correlation between the objective participation length data distribution and related data in the second question shows that short-time participation, activity design favors entertainment and lacks in-depth content). Long-time participation is mostly related to skill-based activities, but limited by professional guidance. The third question of the diversity of forms of participation data distribution and related data correlation shows that collective activities dominate, (chorus of dance) and other low-threshold forms are dominant, and the skills and theory categories account for a relatively low percentage. The correlation between the data distribution and the related data for the fourth question on subjective experience and emotional engagement shows that positive emotions dominate, and music activities bring immediate pleasure, especially for the elderly living alone. Negative experiences were mostly due to activity

conflicts or social pressure. The data distribution and correlation of the subjective experience of meaning perception in the fifth question show that: the value recognition is insufficient, reflecting that the activity fails to effectively meet the needs of respect and self-realization; the meaning is ambiguous, and the participants do not have a clear perception of the value of the activity.

The correlation between the above five dimensions and the related data shows that the objective participation in community music participation of the elderly is low-frequency and shallow, 25% of the elderly have never participated, 55% of the participants are ≤ 1 time per week, and 60% of them are < 1 hour long, reflecting that the activity has insufficient attraction or high barriers to participation. The subjective experience of emotional satisfaction was stronger than value recognition, and emotional input was positive, but meaning perception was only 50%, indicating that the design of the activity favored entertainment and lacked value sublimation. Formal preference is entertainment-oriented and skill participation is low, which is directly related to insufficient support from the community environment.

5. Findings and Recommendations

5.1. Research Findings

5.1.1. Hierarchical Demand-Driven Characteristics

Elderly people's participation in community music activities is mainly driven by the needs for basic health management and emotional regulation, which are manifested in the maintenance of physical functions and the alleviation of psychological pressure through music activities. However, high-level spiritual needs - such as social sense of belonging, value recognition and self-potential development - have not yet been fully satisfied, resulting in short-term and shallow participation behavior, and insufficient sustained and in-depth participation.

5.1.2. Structural Constraints of the Community Environment

There are significant deficiencies in community infrastructure and activity resources, which are manifested in the shortage of age-appropriate venues, homogenization of activity forms, and lack of professional guidance. Such environmental deficiencies are particularly prominent in remote suburban communities, creating a "resource depression effect" that significantly limits the opportunities and quality of participation for the elderly. At the same time, activity design is overly reliant on traditional forms of entertainment and lacks creative transformation of local cultural resources, resulting in a disconnect between music activities and regional cultural identity.

5.1.3. Unevenness of Social Support System

Family support is the core driving force for the participation of the elderly, but there is a serious lack of policy support and enterprise participation, and the supply of resources shows a double deficiency of "government-market". The vulnerability of this support system leads to poor sustainability of activities, making it difficult to form a virtuous cycle of "demand-resources-action", especially for the disadvantaged groups such as those living alone and the elderly, forming a significant participation barrier.

5.1.4. The Emotional Value of Participation is Divided

Although community music activities are positive in terms of immediate emotional satisfaction (e.g., pleasure and relaxation), they have limited long-term effects on the social value identity and meaning construction of life for the elderly. This phenomenon of "high emotional investment and low value recognition" reflects the contradiction in the nature of current activity design, which emphasizes entertainment over empowerment.

5.1.5. Differential Performance of Regions and Groups

Due to the clustering effect of resources, the central urban area is better than the near and far suburbs in terms of diversity and depth of participation, but still faces the problems of insufficient

professional support and lack of cultural innovation. Different age and gender groups have differentiated needs: the younger elderly are more concerned with skill enhancement and cultural expression, while the older group focuses on health maintenance and low-intensity socialization, and the lower willingness of male elderly to participate in traditional forms of recreation is a cause for concern.

5.2. Recommendations for Response

5.2.1 Demand Stratification Intervention to Activate High-Level Demand and Enhance the Depth of Participation

To build a “pyramid-style” activity system, at the basic level, low-threshold activities such as square dances and choral singing are retained to safeguard physiological and safety needs; at the advanced level, Sichuan Opera workshops and advanced classes for musical instruments (e.g., erhu, eqin) are added to support the “Skills Certification-Community Exhibition” path; at the cultural level, a “Non-Genetic Heritage Month” is established, and inheritors of Sichuan Opera are invited to conduct participatory teaching (e.g., Erhu, electronic piano). At the cultural level, a “Non-Genetic Heritage Month” is set up, and Sichuan Opera inheritors are invited to conduct participatory teaching (e.g., dress-up experience, gong and drum interaction).

Establishing an honorary incentive mechanism, issuing a “Certificate of Contribution to Community Music” and selecting “Silver-haired Music Stars” annually to enhance value recognition; giving priority to outstanding participants to be recommended to municipal cultural performances (e.g., the Chengdu International Music Season) to enhance social visibility.

5.2.2. Optimizing The Community Environment and Cracking the Bottleneck of Facilities and Organizations

Ageing-adapted facilities: The Chengdu Community Music Space Construction Standards were formulated, making it mandatory for new communities to build age-adapted music rooms (with non-slip floors, barrier-free facilities, and basic musical instruments); and the “Idle Space Revitalization Program” was implemented in remote communities, whereby abandoned warehouses and auditoriums were transformed into temporary music venues.

The professionalization of the organization has been upgraded, with the establishment of the post of “community music specialist”, responsible for activity planning and resource matching; and the implementation of the “music volunteer credit system” in conjunction with colleges and universities (e.g., the Sichuan Conservatory of Music), with the aim of sending student volunteers.

5.2.3. Resource Integration and Policy Synergy to Build a Sustainable Support Network

Policy innovation: establish a “community music special fund” and allocate funds according to the aging rate (with a 50% increase in subsidies for remote communities); introduce the “Measures for Tax Deduction and Exemption for Enterprises Sponsoring Community Cultural Affairs”, and encourage enterprises to adopt “music public welfare micro-projects” (e.g., sponsoring musical instruments and naming concerts). (e.g., sponsoring musical instruments and naming concerts).

A social linkage platform is set up to build a tripartite cooperation platform of “community-enterprise-public welfare organizations” to promote the directional flow of resources (e.g. enterprises donate intelligent music equipment and public welfare organizations provide training); a “silver-haired music cooperative” is set up to feed the community through the sharing of copyrights (e.g. proceeds from the performance of original music tracks). The establishment of a “silver-haired music cooperative”, which feeds community activities through copyright sharing (e.g., proceeds from original music performances).

5.2.4. Cultural Heritage and Digital Empowerment to Enhance Localization and Inclusiveness

Revitalize Sichuan Opera culture, develop “Sichuan Opera +” community courses (e.g., Sichuan Opera body fitness exercises, adaptation of dialect ballads), and lower the threshold of participation; hold “Courtyard Sichuan Opera Tournament”, and link up with the tourism sector to create a “Music +

Culture and Tourism” special itinerary. The program will also link up with the tourism sector to create “music cultural tourism” lines.

Application of digital technology: develop the ageing-friendly APP “Rongle Zhisheng”, which supports voice commands for booking activities and uploading works (large-print interface + dialect interaction); utilize VR technology to restore the street music scene in old Chengdu, and create a “nostalgic music healing capsule” to serve the elderly and the mobility-impaired groups. Utilizing VR technology to restore old Chengdu street music scenes to create a “nostalgic music healing pod” to serve the elderly and mobility impaired.

5.2.5. Precise Service and Dynamic Assessment to Realize the Goal of All-Age Friendliness.

Data-driven optimization: establish a “Community Music Participation Index” to dynamically monitor the coverage rate, satisfaction and efficiency of resource use in each region; publish a quarterly “White Paper on Community Music Services”, and make public the list of problems and the progress of rectification.

5.3. Summary

In this study, the influence mechanism of community music participation is systematically explored through theoretical integration and empirical analysis with the target of elderly people in Chengdu City. The study found that community music participation is influenced by the interaction of individual needs, community environment and social support, and is characterized by “demand-driven stratification, regionalization of environmental resources, and disconnection of cultural values”. Specifically, low-level needs (health maintenance, emotional regulation) are the main driving force for participation, but the lack of high-level needs (sense of belonging, self-actualization) leads to shallow participation; the lack of community facilities, single activities, and professional guidance creates structural constraints, which are particularly severe in remote suburban areas; the social support relies too much on families, and the lack of policies and enterprises exacerbates the imbalance of resources.

This study provides empirical evidence for the construction of an “all-age friendly community” in Chengdu, reveals the optimal path of community music participation, and provides innovative ideas for the governance of an aging society, as well as a model for the revitalization of cultural resources and the promotion of health in the cities of western China.

Limitations of the study: the sample is skewed towards peri-urban communities, with insufficient coverage of remote and rural elderly groups; cross-sectional data make it difficult to dynamically track the evolution of demand; and the impact of intergenerational interactions (e.g., intergenerational support from families) is not deeply analyzed.

In the future, there is a need to further strengthen interdisciplinary collaboration to promote the transformation of “music in aging” from a local practice to a systemic change.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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