Frontiers of Nursing • 11(4) • 2024
DOI: 10.2478/FON-2024-0039

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Frontiers of **Nursing**

A study on the health service demands and influence factors among elderly people based on a community survey in Western China†

Original article

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Received: 16 February 2024; Accepted: 25 March 2024; Published: 20 December 2024

Abstract: **Objective:** To investigate the health service demands and to analyze influencing factors among elderly people based on a community survey in Guilin, China.
Methods: A random sampling was used to investigate 366 elderly people in a community using a Health-Care-Needs questionnaire, which was designed by The Western Nursing Alliance research team in China. This survey was used to understand the basic situation, financial condition, health condition, self-care abilities, pension plan, and care services demands of the elderly residing at home. Additionally, this article analyzed the influencing factors contributing to the obtained results.
Results: The top 3 nursing needs were security needs (1.61 ± 0.45 points), health education needs (1.54 ± 0.57 points), and respect and self-development needs (1.13 ± 0.64 points). Logistic multifactor regression analysis showed that gender, monthly income, lack of exercise, activities of daily living (ADL) scores, methods of medical payment, and pension plan were independent factors affecting elderly nursing needs.
Conclusions: The home-based health services supply for elders did not meet their needs. Therefore, a comprehensive approach considering multifactors such as gender, income, exercise, self-care ability, medical expense payments, and supporting preferences should be considered to address the complex needs of health care.

Keywords: *health service needs and demands • home-based healthcare • influence factors • senior citizen • survey study • community*

1. Introduction

According to the Statistical Communique of China's Economic and Social Development, China has entered an aging society.[1] In particular, seniors in Western China were facing more serious healthcare challenges. Due to the imbalanced economic development, there was a short supply of medical care availability to the elderly population in the western region of China. This region showed a higher prevalence of chronic diseases compared to the

† This project was supported by The Scientific Research Project of Guangxi Health and Family Planning Commission Foundation of China (No. Z20180913).

How to cite this article: Wang F, Cui ML. A study on the health service demands and influence factors among elderly people based on a community survey in Western China. *Front Nurs*. 2024;4:355–364.

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national average, accompanied by a low level of community health services and inadequate medical equipment, which led to a big gap between demands and supplies.[2,3] Serious healthcare concerns were exhibited in Western China; however, the factors contributing to these issues remained unknown. We investigated the health service demands of the elderly population in a community in Western China. The objective of this study was to explore a suitable age-supported model and formulate effective countermeasures for managing the healthcare demands of the stay-at-home elderly. Our study would provide a reference for future interventional studies and the construction of health service systems.

2. Methods

2.1. Participants

This study used random sampling to investigate elderly people in a community in Western China. The sample size was determined to be 330–400. To ensure the generalization of the study, the population of elderly seniors (80 years old) should account for at least 10%. Inclusion criteria were as follows: (1) ≥60 years old; (2) taking care at home; (3) communicating without barrier after hearing and visual correction; and (4) volunteered to participate in this study after consent. Exclusion criteria were as follows: (1) diagnosed with mental issues; (2) undergoing addiction; (3) impairment in memory and cognitive function; (4) experiencing hearing and language communication disabilities; and (5) unwilling to participate.

2.2. Methods

2.2.1. Research tools

This study used a questionnaire about the healthcare needs of the elderly, which was designed by a research team of The Western Nursing Alliance in China. The Cronbach's α coefficient of the questionnaire was 0.922, proving its reliability and validity. The questionnaire comprised five sections: population and social economy, health status, self-care ability, nursing demand, and pension plan. The nursing demand questionnaire was composed of 37 items categorized into 6 aspects based on Maslow's theory of demand hierarchy.[4] This design was adapted to reflect the characteristics of Chinese elderly individuals. These aspects included physical and mental health needs, daily life care needs, safety needs, health education needs, rehabilitation training and guidance needs, and respect and self-development needs. The level of demand was assessed using a 3-level scoring method: not required = 0 point, not clear = 1 point, and required = 2 points. A higher score indicated a higher degree of demand. The self-care ability questionnaire used activities of daily living (ADL) scale for assessment[5]: 0–20 points represented extremely serious dysfunction; 21–40 points represented serious dysfunction; 41–60 points represented moderate dysfunction; 61–99 points represented mild dysfunction; and 100 points represented the ability for self-care.

2.2.2. Investigation method

The investigators underwent standardized training and collected data through surveys and interviews. After obtaining the consent of the elderly participants, the investigation proceeded with an explanation of the purpose of the investigation, the significance of the questionnaire, and the principle of confidentiality. Investigators completed the questionnaire by interviewing the participants. In this study, a total of 401 questionnaires were distributed and 366 valid responses were collected, yielding an effective rate of 91.2%.

2.3. Statistical treatment

The database was established using the double-entry method, and statistical processing was conducted using SPSS 17.0. (IBM Corporation, Armonk, New York, United States) χ^2 test and single-factor variance analysis were used to compare the degree of demand between groups. Logistic regression was used to analyze multiple factors.

3. Result

3.1. Healthcare needs and satisfaction of elderly residents

The healthcare needs survey was categorized into six aspects. The results were presented as the mean and standard deviation. A1–A10 addressed physiological and psychological health needs, B1–B3 addressed the demand for daily life care, C1–C7 addressed the safety requirements, D1–D7 addressed needs for health education, E1–E5 addressed the rehabilitation training and guidance needs, and F1–F5 addressed the demand for respect and self-development. The demand level was assessed using the 3-level scoring method: not require = 0 point, unclear = 1 point, and required = 2 points. The score for elderly home care needs was 42.95 ± 1.34, and the top 3 needs in the 6 aspects were safety needs (1.61 ± 0.45 points), health education needs (1.54 ± 0.57 points), respect and self-development (1.13 ± 0.64 points); the lowest demand was rehabilitation training and guidance (0.53 ± 0.66 points). The demand rate and satisfaction rate of stay-at-home healthcare for the elderly are shown in Table 1.

Aspects and variables	Demand, N	Demand rate (%)	Demand rank	Satisfied, N	Satisfied rate, N	Satisfied rank
Physiological and psychological health needs						
A1. Creating health record	333	90.98	3	246	73.87	2
A2. Regular medical examination	352	96.17	1	258	73.3	3
A3. Health condition monitoring	346	94.54	2	270	78.03	1
A4. Psychological care	246	67.21	5	153	62.2	5
A5. Family support	263	71.86	4	192	73	4
A6. Indwelling catheter care	47	12.84	9	26	55.32	9
A7. Wound care	46	12.57	10	28	60.87	6
A8. Excretion nursing	54	14.75	8	32	59.26	7
A9. Auxiliary phlegm expulsion	66	18.03	7	39	59.09	8
A10. Hospice and palliative care	74	20.22	6	a	a	A
Daily life care						
B1. Medical companionship service	202	55.19	1	108	53.47	2
B2. Day/Night home nursing	125	34.15	2	50	40	3
B3. Daily care	91	24.86	3	57	62.64	1
Safety needs						
C1. Improving living environment	301	82.24	1	172	57.14	1
C2. Establishing an emergency call system	287	78.42	2	0	0	7
C3. Community emergency rescue	281	76.78	4	82	29.18	6
C4. Establishing a green emergency channel	284	77.6	3	97	34.15	5
C5. Two-way referral service	266	72.68	5	115	43.23	3
C6. Guidance on preventing accidental injury	246	67.21	7	123	50	2
C7. First aid and skills guidance	249	68.03	6	87	34.94	4
Health education						
D1. Guidance on disease monitoring skills	332	90.71	1	221	66.57	1
D2. Guidance on psychological well-being monitoring	254	69.4	5	151	59.45	3
D3. Caregiver education	249	68.03	6	138	55.42	5
D4. Chronic disease prevention and control	282	77.05	3	130	46.1	6
D5. Medication guidance	254	69.4	5	117	46.06	7
D6. Exercise guidance	260	71.04	4	149	57.31	4
D7. Diet and nutrition counseling	287	78.42	2	174	60.63	2
Rehabilitation training and guidance needs						
E1. Delay degeneration training in cognitive function, memory function, and learning ability	156	42.62	1	53	33.97	5
E2. Rehabilitation exercise for daily life function	82	22.4	3	45	54.88	1
E3. Guidance on proper use and maintenance of medical auxiliary devices	83	22.68	2	44	53.01	2
E4. Rehabilitation training of motor function	73	19.95	4	35	47.95	4
E5. Rehabilitation training of language function	49	13.39	5	25	51.02	3
Respect and self-development						
F1. Respect	320	87.43	1	266	83.13	1
F2. Organize supportive teams for elderly with the same disease	173	47.27	4	45	26.01	4
F3. Information about participating in social activities	184	50.27	3	74	40.22	2
F4. Guidance of choosing the suitable activities	214	58.47	2	85	39.72	3
F5. Introduction to re-employment for the elderly	78	21.31	5	18	23.08	5

Table 1. Healthcare needs and satisfaction rates of elderly people residing at home.

3.2. Analysis of influencing factors of healthcare needs

According to the results of this questionnaire, the average score of nursing needs for the elderly residing at home was 42.95. Using this score as the baseline, those lower than the baseline were classified as the low-demand group, with a total of 173 people (47.30%); those higher than the baseline were classified as the high-demand group, with a total of 193 people (52.70%).

3.2.1. Comparison of demographic and socioeconomic characteristics between the high- and low-demand groups

In the comparison of demographic and socioeconomic characteristics, there were significant differences in gender ($P = 0.011$), monthly income ($P = 0.015$), and methods of medical expense payment ($P = 0.016$) between the two groups ($P < 0.05$). Questionnaire items, single factor variables, χ^2, and P values are presented in Table 2.

Variables	Low-demand group	High-demand group	χ^2	P value
Age (years)			0.005	0.997
60–69	101	112		
70–79	49	55		
≥80	23	26		
Gender			6.44	0.011*
Male	65	98		
Female	108	95		
Nationality			0.282	0.595
Han Chinese	153	174		
Other ethnic minorities	20	19		
Degree of education			1.851	0.604
Illiteracy	22	24		
Primary school	55	57		
Junior high school	53	52		
High school and above	43	60		
Marital status			0.662	0.416
Married	131	153		
Widowed or divorced	42	40		
Living conditions			1.199	0.753
Living alone	21	18		
Living only with spouse	60	68		
Living with children	85	96		
Others (live with grandchildren, etc.)	7	11		
Monthly income (yuan)			10.457	0.015*
<1000	28	37		
1000–1999	45	72		
2000–2999	71	50		
>3000	29	34		
Methods of medical payment			10.331	0.016*
Urban worker basic medical insurance	114	126		
Urban resident basic medical insurance	16	37		
New rural cooperative medical insurance	39	28		
Commercial medical insurance	0	0		
Self-funded	4	2		

Note: *$P < 0.05$.

Table 2. Comparison of demographic and socioeconomic characteristics between high- and low-demand groups (N = 366)

3.2.2. Comparison of BMI and chronic diseases prevalence in high- and low-demand groups

In the low-demand group, there were 16 participants with a body mass index (BMI) of <18.5 kg/m^2, 94 participants with a BMI of 18.5–24.9 kg/m^2, and 63 participants with a BMI of ≥25 kg/m^2. In the high-demand group, there were 21 participants with a BMI of <18.5 kg/m^2, 104 participants with a BMI of 18.5–24.9 kg/m^2, and 68 with a BMI of ≥25 kg/m^2. There was no significant difference in BMI between high- and low-demand groups (χ^2 = 0.280, P = 0.870 > 0.05).

In the low-demand group, 30 people did not have chronic diseases and 143 suffered from chronic diseases. In the high-demand group, 27 people did have chronic diseases, and 166 people suffered from chronic diseases. There was no significant difference between high- and low-demand groups in chronic diseases (χ^2 = 0.779, P = 0.337 > 0.05). However, the two groups showed significant differences in terms of rehospitalization frequency (χ^2 = 15.458, P = 0.000 < 0.05) and rehospitalization duration (χ^2 = 12.264, P = 0.007 < 0.05).

3.2.3. Comparison of risk factors, pension plan, and self-care ability between the high- and low-demand groups

In comparison of the risk factors, lack of exercise leads to significant differences (P = 0.004) between the two groups, as shown in Table 3. Moreover, the two groups also showed significant differences in terms of the pension plan (χ^2 = 9.665, P = 0.008 < 0.05) and self-care ability (χ^2 = 12.336, P = 0.015 < 0.05).

3.2.4. Multifactorial analysis of factors affecting the healthcare needs of the elderly residing at home

To further understand the main factors influencing the elderly healthcare demand, we used the healthcare demands score as the dependent variable (Y), the single-factor variables mentioned above were included in the multivariate logistic regression analysis model, and the forced entry method was used for analysis. Variable assignment is shown in Table 4. The test level of the introduced variable was α = 0.05, showing that the variable has a statistically significant impact; the test level of the reject variable was α = 0.10, showing that the variable has a statistically insignificant impact. As a result, gender (OR = 0.562, 95% CI: 0.355–0.890, P = 0.014), monthly income (OR = 0.689, 95% CI: 0.518–0.971, P = 0.011), lack of exercise (OR = 2.489, 95% CI: 1.101–5.624, P = 0.028), and ADL score (OR = 0.728, 95% CI: 0.536–0.988, P = 0.042) were independent factors influencing the level of healthcare needs among the elderly in the community (P < 0.05). Methods of medical payment and pension plans were also independent factors influencing the level of elderly

Risk factors	Low-demand group	High-demand group	χ^2	P value
Smoking			0.007	0.935
No	151	169		
Yes	22	24		
Drinking alcohol			0.952	0.329
No	157	169		
Yes	16	24		
Lack of exercise			8.191	0.004*
No	163	164		
Yes	10	29		
Poor medical practices			0.522	0.47
No	144	155		
Yes	29	38		

Note: *P < 0.05.

Table 3. Comparison of risk factors in high- and low-demand groups (N = 366)

Independent variable	Assignment
Gender (X^1)	"Male" = 1, "Female" = 2
Monthly income (X^2)	"<1000 CNY" = 1, ">1000–2000 CNY" = 2, ">2000–3000 CNY" = 3, ">3000 CNY" = 4
Methods of medical payment (X^3)	"Self-funded" = 1, "Urban worker basic medical insurance" = 2, "Urban resident basic medical insurance" = 3, "New rural cooperative medical insurance" = 4
Lack of exercise (X^4)	"Exercise" = 1, "Lack of exercise" = 2
Re-hospitalization frequency (X^5)	"0 time" = 1, "1–3 times" = 2, "≥4 times" = 3
Re-hospitalization duration (X^6)	"Never" = 1, "Less than 3 months" = 2, "3–6 months" = 3, "More than 6 months" = 4
Caring intention (X^7)	"Home-based" = 1, "Community-based" = 2, "Institution-based" = 3
ADL score (X^8)	"0–20" = 1, "21–40" = 2, "41–60" = 3, "61–99" = 4, "100" = 5
Healthcare needs (Y)	"Low-demand group" = 1, "High-demand group" = 2

Note: ADL, activities of daily living.

Table 4. Multivariate logistic regression analysis assignment table

Independent variable	Regression coefficients (β)	Standard error	Wald value	*P* value	OR value	95% CI of OR	
						Lower bound	Upper bound
Gender	−0.576	0.234	6.048	0.014*	0.562	0.355	0.89
Monthly income	−0.373	0.146	6.541	0.011*	0.689	0.518	0.917
Method of medical payment (self-paying) (Reference)			7.976	0.047*			
Method of medical payment (urban workers)	−0.365	0.97	0.142	0.707	0.694	0.104	4.646
Method of medical payment (urban residents)	0.82	0.362	5.116	0.024*	2.27	1.116	4.62
Method of medical payment (new rural cooperative)	1.004	0.439	5.22	0.022*	2.729	1.153	6.455
Lack of exercise	0.912	0.416	4.804	0.028*	2.489	1.101	5.624
Re-hospitalization frequency	0.573	0.463	1.536	0.215	1.774	0.716	4.394
Re-hospitalization duration	−0.07	0.454	0.024	0.877	0.932	0.383	2.269
Caring intention (home-based) (Reference)			8.779	0.012*			
Caring intention (community-based)	0.646	0.293	4.862	0.027*	1.908	1.074	3.388
Caring intention (institution-based)	1.203	0.43	7.828	0.005*	3.33	1.434	7.733
ADL score	−0.318	0.156	4.155	0.042*	0.728	0.536	0.988
Constant	1.18	1.044	1.278	0.258	3.254		

Note: Selected variables are gender, monthly income, medical expenses payment methods, lack of exercise, caring intention, and ADL score; ADL, activities of daily living; *$P < 0.05$.

Table 5. Multivariate logistic regression analysis of the influencing factors in high- and low-demand groups

nursing needs ($P < 0.05$). Compared with the elderly who paid medical expenses by themselves, the elderly who relied on urban resident basic medical insurance (OR = 2.270, 95% CI: 1.116–4.620, $P = 0.024$) and new rural cooperative medical insurance (OR = 2.729, 95% CI: 1.153–5.624, $P = 0.028$) had higher healthcare needs and the difference was significant ($P < 0.05$). Compared with the elderly who chose home-based caring, community-based caring (OR = 1.908, 95% CI: 1.074–3.388, $P = 0.027$) and institution-based caring (OR = 3.330, 95% CI: 1.434–7.733, $P = 0.005$) had higher healthcare needs and the difference was significant ($P < 0.05$), as shown in Table 5.

4. Discussion

4.1. Health needs of the elderly residing at home showed a diverse range of characteristics

The demand for “safety” of the elderly was the highest among the 6 aspects, indicating that the elderly have a certain level of risk awareness toward the external environment safety. According to the report, falls ranked as the primary cause of injury among Chinese elderly aged ≥65 years .[6] It was closely related to the underlying physiological causes such as functional degeneration and delayed reaction. Eternal environmental risks, such as unsafe furniture arrangement and floor water stains, would also be considered. Hence, guiding the elderly to control these risk factors could effectively reduce safety risks in the home environment. In this study, we found that the satisfaction rate of “community emergency call system” was the lowest. This suggested that the community was still in the first stage of providing this service, indicating a great gap compared with developed countries. Establishing an emergency call system positively improved the rescue success rate of pre-hospital emergency services, especially for “empty-nesters” and disabled seniors. We suggested that actively promoting the emergency call system could provide safety assurances for the elderly. Meanwhile, it could also demonstrate social welfare and accelerate the development of internet-based elderly services.

The demand for “health education” was ranked second in the survey, reflecting participants’ strong desire for health education. This aspect should be given serious consideration as well. The “model of healthy beliefs” states that people will only adopt healthy behaviors if they recognize the seriousness of the disease and its impact on society and family.[7] Among the surveyed elderly individuals, 12.60% reported smoking habits; 10.90% reported alcohol consumption; 10.70% reported a lack of exercise; and 19.40% reported incidents of medication misuse, including missed medication, self-adjusting medication dosage, and self-prescribing medication. These unhealthy behaviors not only increase the risk of developing chronic diseases but also may lead

to adverse consequences such as delayed treatment and impact the prognosis. This study highlighted the necessity and urgency of carrying out health education in Western China.

The demand for "respect and self-development" was ranked at the third place. With the gradual improvement of living standards in China, elderly individuals also paid more attention to their psychological needs. During our case investigation, we encountered a disabled elderly participant who experienced hemiplegia, salivation, and urinary and fecal incontinence after the onset of cerebral infarction. The main home care tasks fell on his aged spouse, who experienced heavy physical and mental exhaustion due to the high-intensity caregiving work. Since it was so hard to promptly clean the bodily excrement and maintain a fine appearance, he felt very awkward and embarrassed when relatives and friends came to visit. This case prompted us to pay more attention to the self-esteem needs of elderly individuals with disabilities and chronic diseases. Another noteworthy phenomenon was that only 20.22% of the elderly participants in this survey needed hospice service and palliative care. However, we found that participants in good health conditions were more unwilling to discuss hospice topics. This tendency may be related to the taboo and fear of "death" in Chinese traditional culture. In Western China, due to the low universalization of palliative care, the avoidance of discussing the topic of death became a psychological weakness for most elderly individuals.[8] Therefore, we thought the findings of this survey did not truly reflect the actual demand. Furthermore, another investigation reveals that the family members hoped their loved patients could pass away without suffering as their lives came to an end. Nevertheless, the hospital and community cannot currently provide hospice services due to the limited medical resources and timely hospitalization. In fact, according to the previous study, <5% of elderly care institutions in China were able to provide palliative care.[9] Therefore, community and home hospice services were highly recommended in the elderly population, which demonstrated the reverence and respect for life.

The western region of China was a multiethnic area where people from various minority groups had different cultural practices. Their home-based care also presented distinctive ethnic characteristics and habits. In this study, we found that the Mien (also known as Yao people) elderly received a higher degree of family support. This may be related to Mien's tradition that women shared equal rights as men in terms of inheriting family property. Therefore, both men and women in the family had equal responsibility and obligation to the elderly. The equality of family ethics relationship provided a strong support for home-based caring. However, due to the small sample size of ethnic minorities, the reliability of the conclusion needed to be further demonstrated.

4.2. Gender, monthly incomes, lack of exercise, ADL scores, methods of medical payment, and pension plan were independent factors that influenced elderly nursing needs

This study showed that the nursing needs of males were higher than females, which may be related to their stereotypical "social gender."[10] The difference between "social gender" and "physiology gender" was formed in the acquired sociocultural constraints. The concept of "The man goes out to work while the woman looks after the house" within the Chinese traditional social division often expected women to take on more responsibilities for household carings than male. To a certain extent, this led to a relative weakening of the self-care ability of the male elderlies, which was consistent with the findings of Li et al.[11] Therefore, improving the self-care ability of male elderlies had a certain significance.

The higher home-based nursing demand positively correlated with the lower monthly income, aligning with the expectation of the life cycle hypothesis, which suggested that the elderly's consumption was governed by the total income received by the family over its entire life. It could be predicted that relying solely on the income or savings of the elderly to purchase health services would bring huge financial and mental pressure to them. This would lead to a high expectation of the public health services provided by the government. This was consistent with the studies in developing countries.[12] Elderlies covered by Urban Resident Basic Medical Insurance and New Rural Cooperative Medical Insurance had higher nursing demand than those covered by Urban Employee Basic Medical Insurance, which is because they had to pay more on their health insurance deductible. This led to a greater financial burden and inability to afford medical services, which affected the accessibility and equity of health services for the elderly. Therefore, we suggested that improving the medical insurance system and increasing the investment in medical care were necessary to meet the needs of the elderly.

The higher nursing demand among the elderly who lack exercise may be related to their susceptibility to health problems such as obesity and hyperlipidemia. Since they have already gotten used to their lifestyle, even if they understand the importance of exercise in

maintaining health, it is still hard for them to persist in exercising. Therefore, health service support was required in a greater extent. On the contrary, elderly individuals with regular exercise had better physical function, less health problems, and a stronger ability to maintain their health. Therefore, we suggested strengthening the community elderly care environment, organizing community sports activities, and improving the physical fitness of the elderly, enabling them to "Aging in place" safely, independently, and comfortably in the community and their own homes.

Self-care ability was closely related to the patient's health. The elderly with poor self-care ability often need to rely on family or professional external support to meet their daily life and medical service requirements. The study also suggested that, with the decline in their self-care ability, there was a need for changes and adjustments in their personal role, family function, and social support system to meet their multifaced nursing needs. Although we believed that self-care ability and chronic diseases had a certain correlation, but single-factor analysis revealed that the difference in whether participants suffered from chronic diseases between high- and low-demand groups was not significant. Thus, it was not the main factor influencing the nursing needs in this research. However, there was still controversy regarding this question.[13–15] Our study suggested that the reasons for the controversy may be: (1) The participants under investigation had good control and had coexisted with the chronic diseases for a long-term status. The diseases were adjusted adaptively so that impacts on physiological functions and self-care ability were not significant. This was consistent with the Lidgren's[16] findings. (2) It required a larger sample size to show the trend of statistical changes more accurately. (3) Since this questionnaire was based on subjective preferences and personal choices, the results may be biased by the participants' inconsistent perceptions of the definition of nursing needs. The results of this study regarding the above factor remain to be further studied and demonstrated.

The survey showed that 65.80% of the elderly participants chose home-based care, which was much higher than community care (12.60%) and institutional care (21.60%). It was obvious that elderlies had a high level of acceptance of home-based care. This might be related to the Chinese tradition that most of the aged people preferred to spend the rest of their lives with their children and families. Although the willingness to care at home had a high level of uniformity but the nursing demands were inconsistent. The elderlies who chose community-based and institution-based care may had more health demands than those who chose to live in the home. The family was limited to meet the diverse needs of nursing, but the community and facilities had the advantage of providing specialized health services that meet the expectations of elderlies with more nursing needs. Therefore, we believed that building a comprehensive home-care system focused on the nursing needs at home was the best way to support the aged people's interest and willingness. It could also strengthen the weakened family caregiving resulting from the 4-2-1 pyramid-shaped family structure accompanied by China's one-child policy.

5. Conclusions

Our study filled out the gaps in studying the nursing needs of the homed-based elderly population. We found the bias of the hospice care needs among elderly people living at home, which was mainly related to traditional culture. Since most of the elderly participants under investigation were undergoing coexistence with chronic diseases, it no longer became the main factor affecting the nursing need in our study. Also, we showed that providing demand-oriented services and carrying out community hospice care had great significance in improving the quality of aged life. We had to point out that since only one community was investigated, the sample size was limited and should be enlarged for further studies. Since we were using the convenience sampling method, the participants may experienced recall bias and report bias during the survey. Our result could not make a causality inference but only suggest a correlation relationship. In future studies, besides perfecting the deficiencies of this study and analyzing the data and results, it should be also considered to formulate a scientific and feasible intervention measures and apply them into practice. Meanwhile, more policy actions were needed to meet the social, health, and care needs of the elderly population.

Acknowledgments

We thank all the participating elderly patients for responding to the study. We also thank YuHuan Jiang for language review for this work.

Conflicts of interest

All contributing authors declare no conflicts of interest.

Ethical approval

This study was approved by the ethics committee of The First Affiliated Hospital of Guangxi Medical University.

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