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Gender difference in unmet need for assistance with activities of daily living among disabled seniors in China : a cross-sectional study

Na Chen [1], Xin Li [2], Min Deng,[1] Chang Qing Wang,[3] Chengchao Zhou [4]

[1]School of Health Economics and Management, Nanjing University of Traditional Chinese Medicine, Nanjing, Jiangsu, China
[2]School of Pharmacy, Nanjing Medical University, Nanjing, Jiangsu, China
[3]Nanjing Medical University, Nanjing, Jiangsu, China
[4]School of Public Health, Shandong University, Jinan, Shandong, China

Correspondence to
Dr Na Chen;
chenna@njucm.edu.cn and
Professor Chengchao Zhou;
zhouchengchao@sdu.edu.cn

ABSTRACT

Objectives This study explores the gender difference in unmet need for assistance with activities of daily living among older adults with disabilities in China.
Design Logistic regression analysis was employed to examine the gender difference and identify influential factors among disabled male and female seniors.
Setting 23 provinces throughout China.
Participants A total of 1700 disabled seniors were included in the analysis.
Results Of 1700 respondents, 619 (36.4%) were disabled male seniors. Overall, the possibility of unmet need for activity of daily living assistance among disabled female seniors was significantly lower than that among male group (OR 0.728; 95% CI 0.559 to 0.948) than males. Family care resources, economic status and loneliness were influential factors among disabled seniors regardless of genders. Furthermore, disabled female seniors from rural area (p=0.011), whose primary caregiver was willing to take care of them (p=0.022), whose community could provide daily life service (p=0.002) were more likely to have unmet need. Meanwhile, disabled female seniors whose community could provide medical service(p=0.001) were less likely to report unmet need.
Conclusions The study showed that disabled male seniors were more likely to experience unmet need compared with female ones. Reducing unmet need for assistance with activities of daily living among disabled seniors and existing gender disparities therefore requires not only universal strategy, but also targeted policies which should be made or modified for disabled seniors of different genders.

INTRODUCTION

Unmet need for assistance with activity of daily living (ADL), which occurs when assistance is insufficient or unavailable to satisfy needs to complete an ADL task,[1] has been considered as one indicator of long-term care[2] and quality of life[3] in many studies. Unmet need for ADL assistance is always related to heavy psychological stress,[4] more hospitalisations or hospital readmissions[5] and higher mortality rate.[1 6]

Strengths and limitation of this study

► The study attempts to explore the disparity of unmet need for activity of daily living (ADL) assistance and influential factors between male and female disabled seniors, which has not been studied in China.
► A large sample of 1700 respondents from 23 provinces throughout China provides a real state of unmet need for ADL assistance among disabled seniors, which are the more vulnerable part of the population.
► Some self-reported information may lead to the possibility of bias.
► The cross-sectional design precludes any causality.

With the coming of ageing society, the proportion of seniors living with disabilities will be on the rise as a result of longer lifespans and wide spread of chronic diseases.[7–9] Due to the deterioration of physical functions and chronic diseases, the probability of suffering from unmet need for assistance with ADL among disabled seniors is significantly higher than others.[10] Accordingly, more and more long-term care, which refer to services provided by formal or informal caregivers to ensure the quality of life and functional ability,[6] are needed to meet the surge in demand of assistance with ADL. Consequently, the issue of unmet need is considered as a priority for global research in geriatrics, especially for disabled seniors. Understanding influential factors of unmet need for ADL assistance is not only vital for optimising long-term care policy, but also essential to improve efficiency and outcome of health service.

Previous studies have identified influential factors related to unmet need for ADL assistance, such as socioeconomic status,[6 11 12] living arrangement,[6 11] non-communicable diseases (NCDs),[3] social support[13] and number of ADL difficulties.[11 13]

Furthermore, there are many evidences certificated that gender is a significant influential factor of unmet need for ADL assistance in developed countries.[14] However, little studies have investigated the unmet need for ADL assistance in low/middle-income countries,[12] especially among disabled seniors. Even less studies focus on gender difference where there are great disparities existing in physical-mental health-related quality of life,[15] attachment patterns and relational self-construal[16] among Chinese disabled seniors. To the best of our knowledge, none study analysis whether influential factors of unmet need for ADL assistance are similar between disabled male and female seniors in China.

Given unmet need as a significant factor affecting long-term care and quality of life, it is an important gerontological research field. There are few studies on gender difference in unmet need for ADL assistance among the disabled elderly in developed countries, our study aims to investigate gender difference and identify influential factors associated with unmet need for ADL assistance in female and male disabled seniors in China with a relatively large sample.

METHODS
Survey design
Data were drawn from the most recent wave of the Chinese Longitudinal Healthy Longevity Survey (CLHLS) in 2014, which was proved to be of good quality.[17] The CLHLS was conducted in half of the cities/counties in 23 provinces throughout China and followed up every 3 years since 1998. Most importantly, it was the only national survey that collects unmet need for ADL assistance as an important index in China.

We focused our analysis on disabled seniors who had difficulty in performing at least one of the following six ADLs measured by Katz Activity of Daily Living Scale,[18 19] including feeding, dressing, bathing, toileting, walking inside, bladder and bowel control. Consequently, 1700 disabled seniors were drawn from 7192 subjects in the 2014 wave of CLHLS, which included 619 males and 1081 females.

Variables and measures
Dependent variable
The dependent variable was unmet need for ADL assistance, which was considered as the presence of any unavailable need for ADL assistance, measuring by the question, 'Does the assistance meet your needs?' There were three possible answers: (1) not met, (2) partially met and (3) fully met. Based on the practice of previous researches,[2 6] we divided responses into two categories: (1) met need (answered 'fully met') and (2) unmet need (answered 'partially met' or 'not met').

Independent variables
As guided by Andersen-Nyman model,[20 21] we classified explanatory factors into three categories: (1) Predisposing variables, including gender (male, female), age (60–74, 75–89, 90+), marital status (couple or single) and education (illiterate or literate); (2) Enabling variables, including residence (rural or urban), living arrangements (living with children or others, living alone) and household income (Q1, Q2 andQ3). Quartile 1 (Q1) is the poorest and quartile 3 (Q3) is the richest; (3) Need variables, including no of NCDs (0, 1 or 2+), no of ADL disability (1–2, 3–4, 5–6) and loneliness (often or seldom). Furthermore, we modified the model by adding family factors (family care resources and primary caregiver's willingness) and community factors (community service for health or life) as enabling factors in accordance with China's national context.[22]

Statistical analysis
Statistical analysis was performed individually among male and female subgroups using statistical package SPSS V.20.0.χ^2 test was conducted to examine differences in categorical variables. Logistic regression with an enter method was applied to assess the association of unmet need for ADL assistance with gender, and to identify influential factors for disabled male and female seniors, respectively. All reported CIs were calculated at the 95% level. Statistical significance was set at the 5% level.

Patient and public involvement statement
Neither patients nor the public had roles in the design, collection, analysis, and interpretation of data or in writing the manuscript.

RESULTS
Basic characteristics of the participants
Table 1 shows basic characteristics of 1700 samples. The overall proportion of unmet need for ADL assistance among the disabled elderly was 60.6%, within 63.3% for males and 59.0% for females, respectively. Generally, majority of disabled seniors were female (63.6%), at the ages of 90+ (64.3%), single (76.9%), illiterate (67.6%), from urban area (53.1%), living with children or others (89.6%), belonging to the middle class (70.4%), having sufficient family care resources (90.4%), having primary caregiver who was willing to take care of them (97.5%), having no community service for daily life (69.4%), having community medical service (51.6%), having difficulties in 1–2 ADL (50.8%) and often feeling lonely (52.6%). Furthermore, age (p<0.001), education (p<0.001), marital status (p<0.001), residence (p=0.004), household income (p<0.001), family care resources (p=0.021) and loneliness (p<0.001) were significantly different between disabled male and female seniors.

Association of gender and unmet need for ADL assistance among disabled seniors
To better understand the association between gender and unmet need for ADL assistance among disabled seniors, we adopted two models in table 2. Results from model

Table 1 Characteristics by gender among study participants in China, CLHLS 2014

Characteristics	Total		Disabled male elderly		Disabled female elderly		P value
	n	%	n	%	n	%	
Observation	1700	100	619	36.4	1081	63.6	
Unmet need for ADL assistance	1030	60.6	392	63.3	638	59.0	
Predisposing factors							
Age							<0.001
60–74	69	4.1	36	5.8	33	3.1	
75–89	538	31.6	257	41.5	281	26.0	
90+	1093	64.3	326	52.7	538	31.6	
Marital status							<0.001
Couple	393	23.1	273	44.1	120	11.1	
Single	1307	76.9	346	55.9	961	88.9	
Education							<0.001
Illiterate	1149	67.6	222	35.9	927	85.8	
Literate	551	32.4	397	64.1	154	14.2	
Enabling factors							
Residence							0.004
Urban	902	53.1	357	57.7	545	50.4	
Rural	798	46.9	262	42.3	536	49.6	
Living arrangements							0.934
With children or others	1524	89.6	556	89.8	968	89.5	
Alone	176	10.4	63	10.2	113	10.5	
Household income*							<0.001
Q_3	267	15.7	123	19.9	144	13.3	
Q_2	1197	70.4	400	64.6	797	73.7	
Q_1	236	13.9	96	15.5	140	13.0	
Family care resources							0.021
Insufficient	163	9.6	73	11.8	90	8.3	
Sufficient	1537	90.4	546	88.2	991	91.7	
Willingness of primary caregiver							0.379
Yes	1658	97.5	601	97.1	1057	97.8	
Others	42	2.5	18	2.9	24	2.2	
Community daily life service							0.382
No	1180	69.4	438	70.8	742	68.6	
Yes	520	30.6	181	29.2	339	31.4	
Community medical service							0.920
No	822	48.4	298	48.1	524	48.5	
Yes	878	51.6	321	51.9	557	51.5	
Need factors							
No of ADL disability							0.128
1–2	863	50.8	334	54.0	529	48.9	
3–4	345	20.3	120	19.4	225	20.8	
5–6	492	28.9	165	26.7	327	30.2	
No of NCDs							0.415
0	661	38.9	228	36.8	433	40.1	

Continued

Table 1 Continued

Characteristics	Total		Disabled male elderly		Disabled female elderly		P value
	n	%	n	%	n	%	
1	533	31.4	199	32.1	334	30.9	
2+	506	29.8	192	31.0	314	29.0	
Loneliness							<0.001
Often	895	52.6	289	46.7	606	56.1	
Seldom	805	47.4	330	53.3	475	43.9	

*Quartile 3 (Q3) is the richest and quartile 1 (Q1) is the poorest.
ADL, activity of daily living; CLHLS, Chinese Longitudinal Healthy Longevity Survey; NCD, non-communicable disease.

1 indicated that the possibility of unmet need for ADL assistance among disabled female seniors was significantly lower than that among male group (OR=0.834, 95 CI 0.680 to 1.022, p=0.049). Model 2 identified that when controlling for other variables, the likelihood of unmet need for ADL assistance among the disabled female elderly was still statistically lower than that among male group (OR=0.728, 95 CI 0.559 to 0.948, p=0.019).

Factors associated with unmet need for ADL assistance among disabled male seniors

Table 3 demonstrates influential factors of unmet need for ADL assistance among disabled male seniors. Univariate analysis showed that the possibility of unmet need among disabled male elders whose household income were corresponding to Q2(p<0.001) or Q1(p<0.001), who had difficulties in 5–6 ADL (p<0.001) was significantly higher than other subgroups. It also indicated the likelihood of unmet need for ADL assistance among those who had sufficient family care resources (p=0.001), who seldom felt lonely (p<0.001) was statistically lower. Multilogistic regression analysis presented that disabled male seniors whose household income were corresponding to Q2 or Q1 were more likely to have unmet need (OR=1.867 and OR=3.891, respectively). The disabled male elders who had sufficient family care resources and who seldom felt lonely were less likely to experience unmet need (OR=0.333 and OR=0.680, respectively).

Factors associated with unmet need for ADL assistance among disabled female seniors

As shown in table 4, univariate analysis indicated that the possibility of unmet need for ADL assistance among those disabled female seniors from rural area (p=0.003), whose household income were corresponding to Q2(p<0.001) or Q1(p<0.001), whose primary caregivers were willing to take care of them (p=0.010), whose community could provide daily life service (p=0.024), who had difficulties in 5–6 ADL (p=0.006) were significantly higher than other subgroups. It also demonstrated the possibility of unmet need for ADL assistance among those who had sufficient family care resources (p=0.009), whose community could provide medical service (p=0.005), who seldom felt lonely (p<0.001) might decrease statistically. Multilogistic

regression analysis showed that disabled female seniors from rural area, whose household income were corresponding to Q2 or Q1, whose primary caregivers were willing to take care of them, whose community could provide daily life service were more likely to have unmet need (OR=1.401, OR=1.891, OR=4.892, OR=4.268 and OR=1.605, respectively). The female group who had sufficient family care resources, whose community could provide medical service, who seldom felt lonely were less likely to report unmet need (OR=0.491, OR=0.630 and OR=0.547, respectively).

DISCUSSION

To the best of our knowledge, fewer studies focus on the gender difference in unmet need for ADL assistance among disabled seniors in developed countries. Consistent with other studies,[2 3] the finding showed that there was a significant difference of unmet need between disabled male and female subgroup, which was 63.3% for males and 59.0% for females. However, another study[14] indicated that female seniors were more likely to have unmet need among community-dwelling New Zealanders 75 years and over. The possible explanation may be different respondents and context. The status of ADL among females are better than males in China.[23] Moreover, females are more likely to take care of others even if they are disabled.[24] Similarly, the role of female seniors is always connected with caregivers for a long time in China, resulting in lower expectations for caring by others,[2] as well as less likely to report unmet need for ADL assistance compared with male group.

Our study indicated that family care resources, economic status and loneliness were influential factors of unmet need for disabled seniors regardless of genders. The risk of having unmet need decreased when family care resources was sufficient, which was in agreement with previous studies.[25 26] Family members are still best caregivers because of traditional filial piety and inadequate social care system for disabled seniors in China.[2] Furthermore, disabled seniors with better economic status, having more access to daily life and medical service, were less likely to experience unmet need for ADL assistance,

Table 2 Association of gender and unmet need for ADL assistance among disabled seniors in China, CLHLS 2014 (n=1700)

Characteristics	Model 1 (no covariates)		Model 2 (covariates)	
	OR (95% CI)	P value	OR (95% CI)	P value
Gender				
Male	1.0		1.0	
Female	0.834 (0.680 to 1.022)	0.049	0.728 (0.559 to 0.948)	0.019
Age				
60–74			1.0	
75–89			0.709 (0.394 to 1.275)	0.251
90+			0.586 (0.322 to 1.064)	0.079
Marital status				
Couple			1.0	
Single			1.062 (0.785 to 1.437)	0.694
Education				
Illiterate			1.0	
Literate			0.898 (0.684 to 1.181)	0.898
Residence				
Urban			1.0	
Rural			1.181 (0.952 to 1.465)	0.131
Living arrangements				
With children or others			1.0	
Alone			1.057 (0.745 to 1.502)	0.755
Household income*				
Q_3			1.0	
Q_2			1.867 (1.402 to 2.486)	<0.001
Q_1			4.426 (2.918 to 6.715)	<0.001
Family care resources				
Insufficient			1.0	
Sufficient			0.449 (0.299 to 0.673)	<0.001
Willingness of caregiver				
Yes			1.0	
Others			3.251 (1.328 to 7.959)	<0.001
Community daily life service				
No			1.0	
Yes			1.467 (1.152 to 1.870)	0.002
Community medical service				
No			1.0	
Yes			0.666 (0.534 to 0.832)	<0.001
No of ADL disability				
1–2			1.0	
3–4			1.213 (0.921 to 1.598)	0.170
5–6			1.277 (0.987 to 1.651)	0.063
No of NCDs				
0			1.0	
1			1.001 (0.780 to 1.286)	0.991
2+			1.065 (0.820 to 1.383)	0.635
Loneliness				
Often			1.0	
Seldom			0.563 (0.452 to 0.702)	<0.001

*Quartile 3 (Q3) is the richest and quartile 1 (Q1) is the poorest.
ADL, activity of daily living ; CLHLS, Chinese Longitudinal Healthy Longevity Survey; NCD, non-communicable disease.

Table 3 Factors associated with unmet need for ADL assistance among disabled male seniors in China, CLHLS 2014 (n=619)

Characteristics	Unmet need for ADL assistance					
	No (%)	Yes (%)	OR c (95% CI)	P value	OR a (95% CI)	P value
n=619	227 (36.7)	392 (63.3)				
Age						
60–74	8 (22.2)	28 (77.8)	1.0		NA	
75–89	94 (36.6)	163 (63.4)	0.495 (0.217 to 1.131)	0.096		
90+	125 (38.3)	201 (61.7)	0.459 (0.203 to 1.040)	0.062		
Marital status						
Couple	108 (39.6)	165 (60.4)	1.0		NA	
Single	119 (34.4)	227 (65.6)	1.249 (0.899 to 1.735)	0.186		
Education						
Illiterate	83 (37.4)	139 (62.6)	1.0		NA	
Literate	144 (36.3)	253 (63.7)	1.049 (0.747 to 1.474)	0.782		
Residence						
Urban	130 (36.4)	227 (63.6)	1.0		NA	
Rural	97 (37.0)	165 (63.0)	0.974 (0.700 to 1.356)	0.877		
Living arrangements						
With children or others	208 (37.4)	348 (62.6)	1.0		NA	
Alone	19 (30.2)	44 (69.8)	1.384 (0.787 to 2.435)	0.259		
Household income*						
Q3	67 (54.4)	56 (45.5)	1.0		1.0	
Q2	141 (35.3)	259 (64.8)	2.198 (1.459 to 3.311)	**<0.001**	1.867 (1.219 to 2.858)	**0.004**
Q1	19 (19.8)	77 (80.2)	4.849 (2.622 to 8.967)	**<0.001**	3.891 (2.062 to 7.343)	**<0.001**
Family care resources						
Insufficient	13 (17.8)	60 (82.2)	1.0		1.0	
Sufficient	214 (39.2)	332 (60.8)	0.336 (0.180 to 0.627)	**0.001**	0.333 (0.175 to 0.634)	**0.001**
Willingness of primary caregiver						
Yes	224 (37.3)	377 (62.7)	1.0		NA	
Others	3 (16.7)	15 (83.3)	2.971 (0.851 to 10.375)	0.088		
Community daily life service						
No	163 (37.2)	275 (62.8)	1.0		NA	
Yes	64 (35.4)	117 (64.6)	1.084 (0.755 to 1.555)	0.663		
Community medical service						
No	99 (33.2)	199 (66.8)	1.0		NA	
Yes	128 (39.9)	193 (60.1)	0.750 (0.540 to 1.042)	0.086		
No of ADL disability						
1–2	144 (43.1)	190 (56.9)	1.0		1.0	
3–4	40 (33.3)	80 (66.7)	1.516 (0.979 to 2.346)	0.062	1.325 (0.840 to 2.091)	0.226
5–6	43 (26.1)	122 (73.9)	2.150 (1.428 to 3.239)	**<0.001**	1.516 (0.977 to 2.355)	0.064
No of NCDs						
0	77 (33.8)	151 (66.2)	1.0		NA	
1	85 (42.7)	114 (57.3)	0.684 (0.462 to 1.013)	0.058		
2+	65 (33.9)	127 (66.1)	0.996 (0.664 to 1.495)	0.986		
Loneliness						
Often	81 (28.0)	208 (72.0)	1.0		1.0	
Seldom	146 (44.2)	184 (55.8)	0.491 (0.351 to 0.687)	**<0.001**	0.680 (0.422 to 0.875)	**0.007**

*Quartile 3 (Q3) is the richest and quartile 1 (Q1) is the poorest.
ADL, activity of daily living; CLHLS, Chinese Longitudinal Healthy Longevity Survey; NA, not applicable; NCDs, non-communicable diseases; OR a, adjusted OR; OR c, crude OR.

Table 4 Factors associated with unmet need for ADL assistance among disabled female seniors in China, CLHLS 2014 (n=1081)

Characteristics	Unmet need for ADL assistance		OR c (95% CI)	P value	OR a (95% CI)	P value
	No (%)	Yes (%)				
n=1081	443 (41.0)	638 (59.0)				
Age						
60–74	11 (33.3)	22 (66.7)	1.0		NA	
75–89	107 (38.1)	174 (61.9)	0.813 (0.379 to 1.743)	0.595		
90+	325 (42.4)	442 (57.6)	0.680 (0.325 to 1.422)	0.306		
Marital status						
Couple	45 (37.5)	75 (62.5)	1.0		NA	
Single	398 (41.4)	563 (58.6)	0.847 (0.574 to 1.255)	0.411		
Education						
Illiterate	369 (39.8)	558 (60.2)	1.0		NA	
Literate	74 (48.1)	80 (51.9)	0.715 (0.508 to 1.007)	0.055		
Residence						
Urban	247 (45.3)	298 (54.7)	1.0		1.0	
Rural	196 (36.6)	340 (63.4)	1.438 (1.127 to 1.834)	**0.003**	1.401 (1.079 to 1.820)	**0.011**
Living arrangements						
With children or others	397 (41.0)	571 (59.0)	1.0		NA	
Alone	46 (40.7)	67 (59.3)	1.013 (0.681 to 1.506)	0.950		
Household income*						
Q_3	89 (61.8)	55 (38.2)	1.0		1.0	
Q_2	324 (40.7)	473 (59.3)	2.362 (1.640 to 3.402)	**<0.001**	1.891 (1.289 to 2.773)	**0.001**
Q_1	30 (21.4)	110 (78.6)	5.933 (3.509 to 10.033)	**<0.001**	4.892 (2.837 to 8.433)	**<0.001**
Family care resources						
Insufficient	25 (27.8)	65 (72.2)	1.0		1.0	
Sufficient	418 (42.2)	573 (57.8)	0.527 (0.327 to 0.850)	**0.009**	0.491 (0.297 to 0.811)	**0.006**
Willingness of primary caregiver						
Yes	440 (41.6)	617 (58.4)	1.0		1.0	
Others	3 (12.5)	21 (87.5)	4.992 (1.480 to 16.839)	**0.010**	4.268 (1.232 to 14.790)	**0.022**
Community daily life service						
No	321 (43.3)	421 (56.7)	1.0		1.0	
Yes	122 (36.0)	217 (64.0)	1.356 (1.040 to 1.768)	**0.024**	1.605 (1.189 to 2.168)	**0.002**
Community medical service						
No	192 (36.6)	332 (63.4)	1.0		1.0	
Yes	251 (45.1)	306 (54.9)	0.705 (0.552 to 0.900)	**0.005**	0.630 (0.478 to 0.830)	**0.001**
No of ADL disability						
1–2	238 (45.0)	291 (55.0)	1.0		1.0	
3–4	89 (39.6)	136 (60.4)	1.250 (0.910 to 1.717)	0.169	1.096 (0.779 to 1.543)	0.599
5–6	116 (35.5)	211 (64.5)	1.488 (1.120 to 1.976)	**0.006**	1.138 (0.833 to 1.553)	0.417
No of NCDs						
0	187 (43.2)	246 (56.8)	1.0		NA	
1	125 (37.4)	209 (62.6)	1.271 (0.949 to 1.702)	0.108		
2+	131 (41.7)	183 (58.3)	1.062 (0.791 to 1.425)	0.689		
Loneliness						
Often	195 (32.2)	411 (67.8)	1.0		1.0	
Seldom	248 (52.2)	227 (47.8)	0.434 (0.339 to 0.556)	**<0.001**	0.547 (0.417 to 0.718)	**<0.001**

*Quartile 3 (Q3) is the richest and Quartile 1 (Q1) is the poorest.
ADL, activity of daily living; CLHLS, Chinese Longitudinal Healthy Longevity Survey; NA, not applicable; NCDs, non-communicable diseases; OR a, adjusted OR; OR c, crude OR.

which was in line with previous studies.[6 25] In addition, loneliness was an influential factor to increase the likelihood of experiencing unmet need among disabled seniors, which was also consistent with other studies.[27] Loneliness is a negative state, expressed as someone perceives herself/himself as socially isolated, which is a risk predictor of malnutrition,[28] illness in later life[29] and low satisfaction among seniors in nursing homes.[27] These findings suggest that targeted policies on ADL assistance should be made for disabled seniors, especially for those who are lonely, with insufficient family care resources or poor economic conditions.

Our results demonstrated that residence, the primary caregiver's willingness, community daily life and medical service were associated with unmet need for ADL assistance among disabled female but not male seniors. Consistent with previous studies,[2] rural older females are more likely to experience unmet need compared with urban counterparts. One possible explanation is that socioeconomic status and availability of healthcare service in urban is much better than that in rural areas in China.[12 30] Another explanation may be the strongly entrenched traditional norm of filial piety in the mind of rural female seniors than male ones,[2] contributing to more dependence on family members, thereby increasing the possibility of unmet need for ADL assistance. The finding indicates that it is imperative to reduce urban–rural socioeconomic differences and renewal conception of pension among rural female seniors.

Parallel to other studies,[13 25] we also found that willingness of primary caregiver and community service influenced the likelihood of unmet need of ADL assistance among disabled female seniors. The willingness of primary caregiver might have an impact not only on quality of caring but also on satisfaction of seniors, ultimately influencing the possibility of reporting unmet need for ADL assistance. Furthermore, many researchers agreed that community service contributed to increasing positive attitudes toward individuals with disabilities.[31] Furthermore, community service also negatively affects the development of depression in new immigrant women significantly.[32] In addition, women's unique attachment patterns and relational self-construal[16] lead to increased sensitivity of primary caregiver's willingness and community service. The finding, therefore, gives an impetus to propose targeted countermeasures, including providing social supports for primary caregivers[33] and strengthening community medical services for different genders.

Interestingly, community service for daily life didn't decrease the possibility of having unmet need, which was inconsistent with previous study.[34] The possible reason may be an imbalance status of supply and demand of community service for daily life in China. Online supplemental data analysis indicated that the gap between supply and demand of household care, daily shopping, organising social activity is 51.9%, 46.5%,42.7%, respectively. The finding shows that it is urgent to optimise capabilities of community service for daily life to realise the equilibrium of supply and demand.

This study had several limitations. First, the information of social-demographic characteristics, health status and unmet need were based on self-reported, leading to the possibility of bias. Second, causal relationship cannot be confirmed through cross-sectional studies. Thus, longitudinal researches are required to test whether the link between gender and unmet need for ADL assistance could be cause-and-effect.

CONCLUSION

This study found that disabled male seniors were more likely to report unmet need for ADL assistance compared with disabled female ones in China. Family care resources, economic status and loneliness were influential factors among disabled seniors regardless of genders. Moreover, residence, willingness of primary caregiver, community daily life and medical service were influential factors of unmet need for ADL assistance among disabled female seniors. Pertinent policies should be made or modified to decreasing the possibility of experiencing unmet need among disabled male and female seniors in a targeted manner.

ORCID iDs
Na Chen http://orcid.org/0000-0002-1829-6802
Xin Li http://orcid.org/0000-0003-3951-8061
Chengchao Zhou http://orcid.org/0000-0002-9364-3579

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