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· 论 著 ·

## 我国独居老年人失能状况及其影响因素分析

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**[摘要]** **目的** 分析我国独居老年人的失能状况及其影响因素。**方法** 基于2018年中国老年人健康影响因素调查项目的调查结果, 纳入1 854名独居老年人的数据, 采用Kata量表判断老年人的失能状况。采用 $\chi^2$ 检验分析独居老年人失能状况的分布特征, 利用二分类logistic回归模型分析独居老年人失能的影响因素。**结果** 13.86% (257/1 854)的独居老年人出现失能。单因素分析显示, 失能的独居老年人和未失能的独居老年人在年龄、BMI、吸烟状况、饮酒状况、规律锻炼情况、自评健康状况和年度体检情况等指标分布的差异均有统计学意义( $P$ 均 $<0.05$ )。多因素logistic回归分析显示, 年龄 $\geq 80$ 岁( $OR=2.554$ )、睡眠时长 $<4.0$  h ( $OR=2.460$ )是独居老年人失能的危险因素, 规律锻炼( $OR=0.637$ )、自评健康较好( $OR=0.593$ )和参加年度体检( $OR=0.698$ )是独居老年人失能的保护因素。**结论** 独居老年人的失能状况受多种因素的影响, 其发生率低于整体老年人的水平。

**[关键词]** 老年人; 独居; 失能; 影响因素; 发生率**[中图分类号]** R 592; R 181.37**[文献标志码]** A**[文章编号]** 2097-1338(2023)06-0706-06

### Disability status and its influencing factors among elderly people living alone in China

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**[Abstract]** **Objective** To analyze the disability status and its influencing factors among elderly people living alone in China. **Methods** Based on the data obtained from the Chinese Longitudinal Healthy Longevity Survey in 2018, a total of 1 854 elderly people living alone were included in this study. The disability status of the subjects was evaluated using Kata scale, and the distribution patterns of disability status were analyzed using  $\chi^2$  test. Furthermore, binary logistic model was used to identify the factors influencing the disability status of elderly people living alone. **Results** The prevalence of disability among the elderly people living alone was 13.86% (257/1 854). The results of the univariate analysis indicated that there were significant differences in age, body mass index, smoking, drinking, regular exercise, self-rated health, and annual physical examination between disabled elderly people and non-disabled elderly people (all  $P<0.05$ ). The logistic regression analysis showed that age  $\geq 80$  years old (odds ratio [ $OR$ ] = 2.554) and sleep duration  $<4.0$  h ( $OR=2.460$ ) were risk factors of disability in the elderly people living alone, while regular exercise ( $OR=0.637$ ), good self-rated health ( $OR=0.593$ ), and participation in annual physical examination ( $OR=0.698$ ) were protective factors. **Conclusion** The disability status of elderly people living alone is influenced by various factors, and the incidence of disability among this population is lower than that among the general elderly population.

**[Key words]** the aged; living alone; disability; influencing factors; incidence

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独居老年人是指因丧偶、未婚、离异、分居等未与子女、配偶或亲人一起居住而独自生活的老年人群体<sup>[1]</sup>。多项研究显示,独居老年人的健康状况面临较大的风险,是老年人群中的弱势群体<sup>[2-4]</sup>。随着我国人口老龄化的逐渐加重,独居的老年人口逐年增多。老年人身体机能受到衰老等因素的影响,机体的活动能力逐渐减弱,严重者会出现失能现象<sup>[5]</sup>。目前大多数针对老年人失能的研究主要围绕老年人失能的流行病学、城乡差异及其在抑郁、慢性病等疾病角度的特征分析<sup>[6-8]</sup>,而对独居老年人群体的失能状况缺乏关注。本研究基于2018年中国老年人健康影响因素调查(Chinese Longitudinal Healthy Longevity Survey, CLHLS)项目获得的全国数据,纳入1 854名65岁及以上独居老年人的数据,探究我国独居老年人的失能状况及其影响因素,为我国独居老年人的健康保障提供理论参考。

## 1 资料和方法

1.1 数据来源 数据来源于2018年中国北京大学组织实施的CLHLS项目,该项目是我国调查范围最大、开展时间最长的社会科学调查,是我国高质量的微观数据研究之一<sup>[9]</sup>。2018年该项目调查范围覆盖了23个省份,调查了15 874人,本研究将未回应及缺失值变量进行删除(年龄<65岁95人,非独居13 309人,未对日常生活活动调查作出回应109人,未对自评健康调查作出回应119人,未对年收入调查作出回应113人,未对人口学、社会学和个人生活等调查作出回应275人),最终纳入了符合要求的1 854名独居老年人作为研究对象。

1.2 失能判断 采用国际通用的Kata量表判断老年人的失能状况。汉化版Kata量表具有良好的信效度,其Cronbach  $\alpha$ 系数为0.904,比较拟合指数为1.000, Tucker-Lewis指数为0.999,近似误差均方根为0.030<sup>[10]</sup>。该量表包含6个项目,分别是洗澡、吃饭、穿衣、上厕所、大小便控制及室内移动,如果有1项或多项不能独立完成,则表示该调查对象存在失能状况,反之则不存在失能状况。

1.3 变量选择 参考文献<sup>[11-14]</sup>报道,纳入的自变量包括独居老年人的个人特征、家庭因素、健康生活习惯、健康状况。

(1) 个人特征指标分类和赋值如下:居住地分为农村、乡镇和城市3类,赋值分别为0、1、2;性别分为女性和男性2类,赋值分别为0和1;年龄分为<80岁和 $\geq$ 80岁2类,赋值分别为0和1;BMI的计算方法是体重(kg)除以身高(m)的平方,分为<18.5、18.5~23.9、24.0~27.9、 $\geq$ 28.0 kg/m<sup>2</sup>4类,赋值分别为0、1、2、3。

(2) 家庭因素指标分类和赋值如下:婚姻状态分为已婚并与配偶一起生活、丧偶和其他(包括已婚但不与配偶居住、离异和从未结婚)3类,赋值分别为0、1、2;年收入分为非常贫穷(<10 000元)、贫穷(10 000~29 999元)、中等(30 000~49 999元)和富裕( $\geq$ 50 000元)4类,赋值分别为0、1、2、3。

(3) 健康生活习惯指标分类和赋值如下:吸烟情况分为不吸烟和吸烟2类,赋值分别为0和1;饮酒情况分为不饮酒和饮酒2类,赋值分别为0和1;规律锻炼情况分为不锻炼和锻炼2类,赋值分别为0和1;睡眠时长分为<4.0、4.0~5.9、6.0~7.9、 $\geq$ 8.0 h 4类,赋值分别为0、1、2、3;年度体检情况分为不参加和参加2类,赋值分别为0和1。

(4) 健康状况指标分类和赋值如下:自评健康情况参考同类研究<sup>[12-13]</sup>分为差和好2类,赋值分别为0和1;慢性病数量分为0、1、 $\geq$ 2个3类,赋值分别为0、1、2。

1.4 统计学处理 应用Stata 16.0软件进行统计学分析。运用描述性统计方法对独居老年人的失能状况进行分析,数据以例数和百分数表示;采用 $\chi^2$ 检验进行独居老年人失能影响因素的单因素分析;以是否失能作为因变量,采用二分类logistic回归模型对独居老年人失能的影响因素进行多因素分析。检验水准( $\alpha$ )为0.05。

## 2 结果

2.1 调查对象的基本信息 共纳入独居老年人1 854人,年龄为(84.29 $\pm$ 9.35)岁,其中80岁及以上老年人1 273人(68.66%);男721人(38.89%)、女1 133人(61.11%);居住在农村的老年人有877人(47.30%)、乡镇632人(34.09%)、城市345人(18.61%);51.67%(958人)的独居老年人BMI处于正常参考值范围(18.5~23.9 kg/m<sup>2</sup>);丧偶的独居老年人占比为87.27%(1 618人);大

多数 (48.17%, 893 人) 独居老年人的年收入低于 10 000 元; 50.86% (943 人) 的独居老年人患有慢 性病, 16.83% (312 人) 的独居老年人患多种慢性 病。见表 1。

表 1 独居老年人基本信息及失能影响因素的单因素分析

Tab 1 General information and univariate analysis of influencing factors of disability in elderly people living alone

Variable	Total N=1 854	Non-disability N=1 597	Disability N=257	$\chi^2$ value	<i>P</i> value
Gender				0.465	0.495
Female	1 133 (61.11)	971 (60.80)	162 (63.04)		
Male	721 (38.89)	626 (39.20)	95 (36.96)		
Age/year				37.987	<0.001
<80	581 (31.34)	543 (34.00)	38 (14.79)		
≥80	1 273 (68.66)	1 054 (66.00)	219 (85.21)		
BMI/(kg·m <sup>-2</sup> )				13.797	0.003
<18.5	301 (16.24)	244 (15.28)	57 (22.18)		
18.5-23.9	958 (51.67)	824 (51.60)	134 (52.14)		
24.0-27.9	400 (21.57)	363 (22.73)	37 (14.40)		
≥28.0	195 (10.52)	166 (10.39)	29 (11.28)		
Residence				2.326	0.313
Rural	877 (47.30)	764 (47.84)	113 (43.97)		
Town	632 (34.09)	544 (34.06)	88 (34.24)		
City	345 (18.61)	289 (18.10)	56 (21.79)		
Marital status				0.378	0.828
Married and living with spouse	104 (5.61)	89 (5.57)	15 (5.84)		
Widower	1 618 (87.27)	1 392 (87.16)	226 (87.94)		
Others <sup>a</sup>	132 (7.12)	116 (7.26)	16 (6.23)		
Annual income/yuan				2.157	0.540
<10 000	893 (48.17)	773 (48.40)	120 (46.69)		
10 000-29 999	321 (17.31)	282 (17.66)	39 (15.18)		
30 000-49 999	181 (9.76)	152 (9.52)	29 (11.28)		
≥50 000	459 (24.76)	390 (24.42)	69 (26.85)		
Smoking				4.973	0.026
No	1 557 (83.98)	1 329 (83.22)	228 (88.72)		
Yes	297 (16.02)	268 (16.78)	29 (11.28)		
Drinking				8.154	0.004
No	1 562 (84.25)	1 330 (83.28)	232 (90.27)		
Yes	292 (15.75)	267 (16.72)	25 (9.73)		
Regular exercise				17.022	<0.001
No	1 226 (66.13)	1 027 (64.31)	199 (77.43)		
Yes	628 (33.87)	570 (35.69)	58 (22.57)		
Sleep duration/h				4.898	0.179
<4.0	665 (35.87)	583 (36.51)	82 (31.91)		
4.0-5.9	628 (33.87)	528 (33.06)	100 (38.91)		
6.0-7.9	228 (12.30)	202 (12.65)	26 (10.12)		
≥8.0	333 (17.96)	284 (17.78)	49 (19.07)		
Number of chronic diseases				0.545	0.762
0	911 (49.14)	790 (49.47)	121 (47.08)		
1	631 (34.03)	541 (33.88)	90 (35.02)		
≥2	312 (16.83)	266 (16.66)	46 (17.90)		
Self-rated health				18.530	<0.001
Bad	996 (53.72)	826 (51.72)	170 (66.15)		
Good	858 (46.28)	771 (48.28)	87 (33.85)		
Yearly physical examination				17.430	<0.001
No	546 (29.45)	442 (27.68)	104 (40.47)		
Yes	1 308 (70.55)	1 155 (72.32)	153 (59.53)		

<sup>a</sup>: Other marital status includes being married but not residing with a spouse, divorced, and never married. BMI: Body mass index.

2.2 独居老年人的失能发生情况 257名独居老年人出现失能情况,失能的发生率为13.86%。居住在农村、乡镇和城市的独居老年人失能发生率分别为12.88%(113/877)、13.92%(88/632)和16.23%(56/345)。从性别角度分析,独居男性老年人的失能发生率为13.18%(95/721),独居女性老年人的失能发生率为14.30%(162/1133)。

2.3 独居老年人失能影响因素的单因素分析 单因素分析结果显示,失能的独居老年人与未失能的独居老年人在年龄、BMI、吸烟状况、饮酒状况、规律锻炼情况、自评健康状况和年度体检情况等方面

差异均有统计学意义( $P$ 均 $<0.05$ )。见表1。

2.4 独居老年人失能影响因素的多因素分析 以是否失能为因变量,将选取的自变量纳入多因素logistic回归模型,模型运行结果如表2所示。独居老年人的失能状况主要受年龄、规律锻炼情况、睡眠时长、自评健康情况和年度体检情况影响,其中年龄 $\geq 80$ 岁( $OR=2.554$ )、睡眠时长 $<4.0$ h( $OR=2.460$ )是独居老年人失能的危险因素,规律锻炼( $OR=0.637$ )、自评健康较好( $OR=0.593$ )和参加年度体检( $OR=0.698$ )是独居老年人失能的保护因素。

表2 独居老年人失能影响因素的多因素 logistic 回归分析

Variable	<i>b</i>	<i>SE</i>	Wals	<i>P</i> value	<i>OR</i> (95% <i>CI</i> )
Constant	-2.656	0.575	21.353	<0.001	0.070
Gender (vs female)					
Male	0.148	0.159	0.866	0.352	1.159 (0.849, 1.584)
Age (vs <80 years old)					
$\geq 80$ years old	0.938	0.197	22.705	<0.001	2.554 (1.737, 3.755)
BMI (vs 18.5-23.9 kg·m <sup>-2</sup> )					
<18.5 kg·m <sup>-2</sup>	0.218	0.183	1.413	0.235	1.243 (0.868, 1.779)
24.0-27.9 kg·m <sup>-2</sup>	-0.309	0.205	2.274	0.132	0.734 (0.492, 1.097)
$\geq 28.0$ kg·m <sup>-2</sup>	0.146	0.232	0.395	0.530	1.157 (0.734, 1.823)
Residence (vs rural)					
Town	0.083	0.159	0.275	0.600	1.087 (0.796, 1.483)
City	0.356	0.217	2.690	0.101	1.427 (0.933, 2.184)
Marital status (vs married and living with spouse)					
Widower	-0.327	0.304	1.154	0.283	0.721 (0.397, 1.309)
Others <sup>a</sup>	-0.171	0.404	0.178	0.673	0.843 (0.382, 1.863)
Annual income (vs <10 000 yuan)					
10 000-29 999 yuan	-0.020	0.206	0.010	0.921	0.980 (0.654, 1.468)
30 000-49 999 yuan	0.079	0.262	0.092	0.762	1.082 (0.648, 1.807)
$\geq 50$ 000 yuan	0.070	0.182	0.148	0.700	1.073 (0.751, 1.533)
Smoking (vs no)					
Yes	-0.299	0.231	1.684	0.194	0.741 (0.472, 1.165)
Drinking (vs no)					
Yes	-0.454	0.236	3.703	0.054	0.635 (0.400, 1.008)
Regular exercise (vs no)					
Yes	-0.451	0.170	7.005	0.008	0.637 (0.456, 0.890)
Sleep duration (vs 6.0-7.9 h)					
<4.0 h	0.896	0.458	3.835	0.049	2.460 (1.003, 6.036)
4.0-5.9 h	0.845	0.452	3.498	0.061	2.329 (0.960, 5.649)
$\geq 8.0$ h	0.867	0.447	3.757	0.053	2.379 (0.990, 5.713)
Number of chronic diseases (vs 0)					
1	0.152	0.158	0.925	0.336	1.165 (0.854, 1.589)
$\geq 2$	0.128	0.210	0.371	0.542	1.137 (0.753, 1.716)
Self-rated health (vs bad)					
Good	-0.522	0.149	12.345	<0.001	0.593 (0.444, 0.794)
Yearly physical examination (vs no)					
Yes	-0.359	0.147	6.015	0.014	0.698 (0.524, 0.930)

<sup>a</sup>: Other marital status includes being married but not residing with a spouse, divorced, and never married. BMI: Body mass index; *b*: Regression coefficient; *SE*: Standard error; *OR*: Odds ratio; *CI*: Confidence interval.



### 3 讨 论

本研究聚焦我国独居老年人的失能状况进行分析,结果显示我国65岁及以上独居老年人的失能发生率是13.86%,低于闫伟等<sup>[15]</sup>对所有老年人调查报告的失能发生率(26.6%),表明独居老年人的失能发生率低于整体老年人的水平,说明独居老年人可能具有更好的自我管理和照顾能力。

本研究单因素分析结果显示,独居老年人的失能状况受年龄、BMI、吸烟状况、饮酒状况、规律锻炼状况、自评健康情况和年度体检情况等的影响,这一结果与大多数对整体老年人开展的研究<sup>[1,3,15]</sup>相似。但是值得注意的是,与全样本老年人调查结果不同,在独居老年人中性别、居住地、经济收入、婚姻状态、慢性病数量对其失能状况没有影响<sup>[2,6,16]</sup>,一方面表明独居老年人的失能状况主要受个人健康生活习惯和健康状况的影响;另一方面可能是因为独居老年人的慢性患病率相对总体较低(独居老年人为50.86%,总体为66.4%<sup>[15]</sup>),往往具有较好健康状况的老年人才会选择独居,健康状况较差的老年人因生活照顾的需要而多与子女、亲属同住或居住在养老院、医院等<sup>[8]</sup>,存在健康的“幸存者偏倚”现象,因此独居老年人表现为失能发生率较低。

本研究多因素分析结果显示,独居老年人的失能主要受年龄、锻炼、睡眠时长、自评健康情况和年度体检情况等因素影响。对于年龄因素,年龄增加带来失能风险增大,符合人体生理衰老变化的自然过程<sup>[2]</sup>,本研究结果也显示80岁及以上的独居老年人失能风险是80岁以下独居老年人的2.554倍,这与其他学者的研究结果<sup>[1,12]</sup>基本一致。睡眠是影响老年人健康的重要因素<sup>[17]</sup>,在本研究中,独居老年人的睡眠因素中仅有当睡眠时长<4.0 h时才会增大失能风险,失能的发生风险是睡眠时长为6.0~7.9 h人群的2.460倍;睡眠时长为4.0~5.9 h及≥8.0 h的群组结果也接近于存在统计学意义,提示睡眠不足及睡眠时间过长也可能有潜在的失能风险。规律锻炼能保护老年人失能的发生<sup>[10-11]</sup>,本研究结果表明规律锻炼的独居老年人失能风险是不锻炼者的0.637倍。自评健康状况较好的独居老年人失能风险是自评健康较差者的0.593倍;每年参加年度体检的老年人失能风险是未参加年度体检者

的0.698倍,这可能是参加年度体检的老年人能更有效地掌握自身的身体状况<sup>[18]</sup>,及时采取相应的预防措施,避免了慢性病的发生或减缓了慢性病的进展<sup>[19]</sup>,降低了失能的发生率。

本研究存在以下局限性,首先,中国有大量的独居老年人,本项研究仅调查了其中的一部分,样本量有限且纳入的年龄结构有限,可能无法代表全部独居老年人的失能情况;其次,独居老年人的失能状况受到众多因素的影响,本研究仅纳入了其中的部分因素,有待后续的研究持续验证。本研究虽然存在上述局限性,但是研究聚焦中国独居老年人这一群体并重点分析其失能状况,为了解独居老年人的失能状况提供了新的理论证据,所获得的结论有助于改善独居老年人的健康状况。

本研究提出以下政策建议以改善独居老年人的失能状况。首先,对于独居老年人失能的预防,要特别关注高龄、未参加年度体检及睡眠和自评健康状况较差的人群,特别是对高龄人群加大医疗保障、社会保障等投入支持,提供年度体检等服务<sup>[20]</sup>。其次,政府需要持续加强对独居老年人群的健康宣传教育<sup>[21]</sup>,从本研究单因素及多因素分析结果可知,影响独居老年人失能状况的因素主要是健康生活习惯和健康状况,采用多种教育方式和途径鼓励独居老年人养成良好的生活习惯<sup>[22]</sup>或许会降低失能的发生率。

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