

Prevalence and Factors Affecting Mental Health among Older Adults: A Cross-Sectional Study in Rural South Karnataka

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Abstract:

Introduction: Ageing is a lifelong process of growing up and growing old. It begins at conception and ends with death. It is important to take into account the various physical and mental health issues that older adults experience. **Objective:** To determine the prevalence and factors affecting mental health among older adults. **Method:** A cross-sectional study was conducted between January to June 2022 in the rural field practice area of tertiary care hospital in South Karnataka. Complete Enumeration method was used, total of 780 participant were interviewed using a semi-structured proforma. Mental health was assessed using General Health Questionnaire-12 (GHQ-12) which is a short, self-administered questionnaire. Descriptive statistics were calculated using the mean, standard deviation, and proportion. To assess the relationship between risk factors, the chi square test was employed. **Results:** Using the GHQ-12 scoring, 50.4% of the older adults had mild distress & 18.6% of the older adults had severe distress. The factors affecting mental health were increase in age (p value<0.001), females (p value<0.01), poor occupational status (p value<0.001), poor socioeconomic status (p value<0.05), locomotor disability (p value<0.001) and those who suffered physical/mental abuse (p value<0.001). **Conclusion:** The mental health of older adults is at stake. It was observed that stress was seen with increasing age, females, unemployment, lower socioeconomic status, broken family, hypertension, lack of social support, disability, and abuse.

Keywords: General Health Questionnaire-12, Mental Health, Older adults, Risk factors

Introduction:

The operational definition of health is “A condition or quality of the human organism expressing the adequate functioning of the organism in given conditions, genetic or environmental.” A person is said to be in a state of health if they are able to express all of their distinct potential within their surroundings and are in good bodily, mental, social, and spiritual health. Each person is situated on a graded scale or continuous

spectrum (continuum) spanning from wellness and optimal functioning in every element of one’s life, at one end, to sickness resulting in death, at the other. Both health and illness are dynamic processes.^[1]

Ageing is the process by which older individuals become a proportionally larger share of the total population. Age 60 is generally set as the threshold of old age since it is at this period of life that the rates for sickness and death begin to show a marked increase over

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those of the earlier years. There are currently 1 billion people in the world who are 60 years of age or older, and this number is expected to rise to 1.4 billion by 2030 and 2.1 billion by 2050.^[2] The population is growing at an unprecedented rate, and this trend is expected to pick up speed in the upcoming decades, especially in developing nations.^[3]

Hearing loss, cataracts & refractive errors, back & neck pain and osteoarthritis, chronic obstructive pulmonary disease, diabetes, depression, and dementia are common ailments among elderly people. People are more prone to have multiple ailments at once as they get older. The rise of various complex health conditions known as geriatric syndromes is another feature of older age. They include weakness, urine incontinence, stumbles, delirium, and pressure ulcers, and they are frequently the result of other underlying conditions.^[4]

Very few studies have been done, especially in rural Karnataka regarding general health among older adults, which is of public health importance. Hence this study is being conducted to determine the prevalence and factors affecting general health among those aged 60 years and above and factors affecting them.

Methods:

This cross-sectional study was carried out in rural, south Karnataka between January to June 2022. The study subjects were older adults aged ≥ 60 years.

Inclusion and Exclusion criteria

Elderly male & female persons aged 60 years and above who were residing in rural field practise area for more than one year & were willing to give informed consent. The 9 elderly were excluded as they were unable to respond either due to being very ill, or having speech & communication problems, preventing normal conversation.

Sampling Method: All older adults both males & females aged 60 years and above in the area were enlisted. Out of 789 residents, 780 participants were selected based on the inclusion and exclusion criteria.

Data collection tool: Consecutive enrollment of participants was done by house-to-house visit in the rural field practice area of tertiary care hospital, South Karnataka. Data was collected using a pretested semi structured questionnaire. The households of the older persons were visited by trained investigator; after explaining the purpose of the research and getting informed consent, the elderly were interviewed separately for about half an hour in their residence. The interview was done by the researchers in the vernacular language, Kannada. The questionnaire consisted of 3 parts.

The first part collected the socio-demographic data, like, age, literacy, economic condition, family members, type of family including broken family^[8] etc. The second part was the General Health Questionnaire-12 (GHQ-12) which is a short, self-administered questionnaire used to screen for common mental disorders and assess overall mental well-being. The original GHQ-12 in English version was translated into Kannada language using the translation and backtranslation method by independent bilingual experts, and both the original and the backtranslated English version were compared. Finally, with the help of third reviewer in the reconciliation meeting, consensus version was developed. Using likert scale, score of 0-15 indicates no distress, 16-24 indicates mild distress, and > 25 indicates severe distress.^[6] Thus Psychological distress was assessed using GHQ-12. The third part collected data about co-morbidities (diabetes, heart disease, etc.), duration, severity and its effect on mental status both recently and in the past. Social pathologies (lack of social support, physical / mental abuse, etc.) affecting the mental status of the participants were also assessed using a 4-point likert scale.

Data analysis: The study was conducted after obtaining approval from the ethics committee & IEC certificate number is MIMS/IEC/2021/492. Data was entered and analysed using Statistical package SPSS version 20. Descriptive analysis was expressed in proportions. Chi square test was used to find association. A p value of

<0.05 is considered statistically significant. Multivariable binary logistic regressions were used to evaluate the association between various factors.

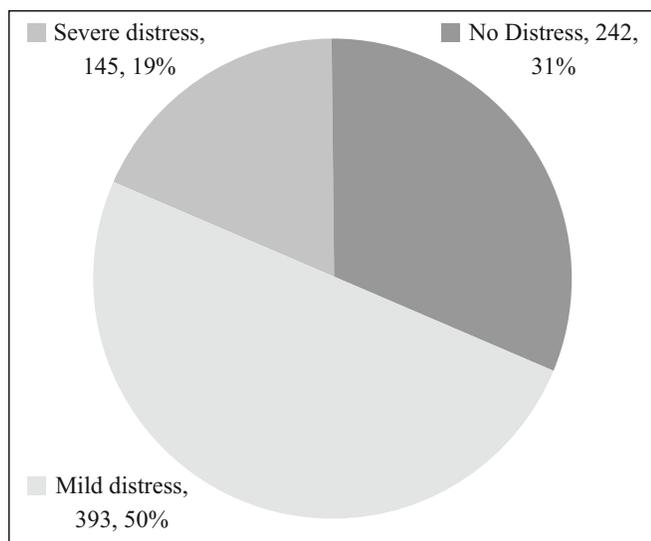
Results:

In the present study, out of 780 study subjects, 510 (65.4%) were in the age group of 60- 69 years, followed by 177 (22.7%) who were in the age group of 70-79 years. The mean and standard deviation (SD) of age was 67.2 ± 7.267 years. Out of 780 study subjects, 444 (56.9%) were men and 336 (43.1%) were women.

Out of 780 older persons, 393 (50.4%) had mild distress. Severe distress was seen among 145 (18.6%) of older persons.

Pertaining to age groups, 57 (11.2%) of the 510 older persons aged 60-69 years had severe distress and 232

Figure 1: Distribution of older persons according to GHQ-12 score (n=780)



(45.5%) had mild distress. Among 54 (30.5%) of the 177 older persons aged 70-79 years 54 had severe distress and 110 (62.1%) of them had mild distress. Among 32 (35.6%) of the 90 older persons aged between 80-89 years had severe distress and 50 (55.6%) of them had mild distress. Among those aged 90-99 years, 2 (66.7%) had severe distress and 1 (33.3%) had mild distress. An increasing trend of severe distress was noted with increasing age. The differences in the proportion of different levels of distress in the different age groups were statistically significant (p value <0.001)

Pertaining to sex, out of 444 elderly men, 49 (11.0%) of the men had severe distress and 220 (49.5%) had mild distress. Out of 336 elderly females, 96 (28.6%) had severe distress and 173 (51.5%) had mild distress. The proportion of elderly women having severe distress was more than compared to the proportion of elderly men having severe distress. The differences in the proportion of different levels of distress in the different gender groups were statistically significant. (p value: <0.001)

Among illiterates, out of 506 older persons 123 (24.3%) had severe distress and 242 (47.8%) had mild distress. 9 (14.5%) of the 62 who studied till primary school had severe distress and 38 (61.3%) had mild distress. 7 (4.4%) of the 160 high school educated older persons had severe distress and 93 (58.1%) had mild distress. Out of the of the 52-college educated older persons 6 (11.5%) had severe distress and 20 (38.5%) had mild distress.

The proportion of elderly who were illiterates had more severe distress compared to other educational groups. The differences in the proportion of levels of distress in the different literacy groups was significant (p value: <0.001)

Relating to occupation of the older persons as per International Classification of Occupations^[7], 53 (32.7%) of those unemployed had severe distress and 93 (57.4%) had mild distress. Among the older persons, 32 (8.9%) of those engaged in unskilled work had severe distress and 163 (45.4%) had mild distress. Among the older persons engaged in semiskilled work, none had severe distress and 25 (67.6%) of the semiskilled workers had mild distress. Among the study participants who were engaged in skilled work , none had severe distress and 2 (40.0%) had mild distress. Among the study participants who were professionals, none had severe distress and 4 (57.1%) had mild distress. Among the older persons who were homemakers, 60 (28.6%) of them had severe distress and 106 (50.5%) had mild distress. The proportion of older persons who were unemployed and homemakers had more severe distress compared to other occupational groups. The differences

in the proportion of levels of distress in the different occupational groups was significant (p value: <0.001)

In reference to socioeconomic class (Modified B G Prasad Classification April 2023), out of 8 study participants belonging to class III, none had severe distress 2 (25.0%) had mild distress.

Out of 336 elderly belonging to Class IV, 57 (17.0%) had severe distress and 175 (52.1%) had mild distress. Out of 304 study participants belonging to Class V, 88 (20.2%) had severe distress and 216 (49.5%) had mild distress. An increasing trend of severe distress was noted with Class IV & Class V. The differences in the

proportion of levels of distress in the different socioeconomic groups were not significant (p value: 0.06)

Considering types of family, out of 252 older persons belonging to nuclear family living with their spouse 31 (12.3%) had severe distress and 118 (46.8%) had mild distress. Out of 356 older persons belonging to three generation family living with their children and grandchildren 79 (22.2%) had severe distress and 166 (46.6%) had mild distress. Out of 65 older persons belonging to joint family, none had severe distress and 49 (75.4%) had mild distress. Out of 77 older persons belonging to broken family where they did not have their

Table 1: Proportion of distress in older persons according to their sociodemographic characteristics (n=780)

Variables	Severe distress n (%)	Mild distress n (%)	No distress n (%)	Chi-Square	P value
Age group					
60-69	57 (11.2)	232 (45.5)	221 (43.3)	137.8*	<0.001
70-79	54 (30.5)	110 (62.1)	13 (7.3)		
80-89	32 (35.6)	50 (55.6)	8 (8.9)		
90-99	02 (66.7)	01 (33.3)	0 (0)		
Sex					
Males	49 (11.0)	220 (49.5)	175 (39.4)	55.1	<0.001
Females	96 (28.6)	173 (51.5)	67 (19.9)		
Education					
Illiterate	123 (24.3)	242 (47.8)	141 (27.9)	44.4	<0.001
Primary	9 (14.5)	38 (61.3)	15 (24.2)		
High school	7 (4.4)	93 (58.1)	60 (37.5)		
College	6 (11.5)	20 (38.5)	26 (50.0)		
Occupation					
Unemployed	53 (32.7)	93 (57.4)	16 (9.9)	118.3*	<0.001
Unskilled	32 (8.9)	163 (45.4)	164 (45.7)		
Semiskilled	0 (0)	25 (67.6)	12 (32.4)		
Skilled	0 (0)	2 (40.0)	3 (60.0)		
Professional	0 (0)	4 (57.1)	3 (42.9)		
Homemaker	60 (28.6)	106 (50.5)	44 (21.0)		
Socioeconomic Scale					
III	0 (0)	2 (25.0)	6 (75.0)	7.2*	0.06
IV	57 (17.0)	175 (52.1)	104 (31.0)		
V	88 (20.2)	216 (49.5)	132 (30.3)		
Type of family					
Nuclear	31 (12.3)	118 (46.8)	103 (40.9)	64.0	<0.001
Three generation	79 (22.2)	166 (46.6)	111 (31.2)		
Joint	0 (0)	49 (75.4)	16 (24.6)		
Broken	35 (32.7)	60 (56.1)	12 (11.2)		
Total	145 (18.6)	393 (50.4)	242 (31.0)		

Note. *Fischer's Exact Test used

spouse and lived alone or with other household members, 35 (32.7%) had severe distress and 60 (56.1%) had mild distress. The proportion of older persons who were living in broken family had more severe distress compared to other types of family. The differences in the proportion of levels of distress in the different family groups were significant (p value: <0.001) (Table 1).

Among elderly diabetics, 35 (17.5%) had severe distress and 111 (55.5%) had mild distress. The differences in the proportion of different levels of distress regarding diabetes was statistically not significant (p value: 0.226).

Among elderly hypertensives, 56 (22.0%) had severe distress and 144 (56.5%) had mild distress. The

proportion of elderly hypertensives having severe distress was more than the proportion of normotensives having severe distress. The differences in the proportion of different levels of distress regarding hypertension was statistically significant (p value: <0.001).

Among those elderly who were suffering from heart disease 3 (11.1%) had severe distress and 19 (70.4%) had mild distress. The differences in the proportion of different levels of distress regarding heart disease were statistically not significant (p value: 0.107).

Among those with locomotor disability, 46 (38.7%) had severe distress and 68 (57.1%) had mild distress. The

Table 2: Proportion of distress levels in study participants with and without different co-morbidities (n=780)

Variables	Severe distress n (%)	Mild distress n (%)	No distress n (%)	Chi-Square	P value
Diabetes Mellitus					
Absent	110 (19.0)	282 (48.6)	188 (32.4)	2.974	0.226
Present	35 (17.5)	111 (55.5)	54 (27.0)		
Hypertension					
Absent	89 (17.0)	249 (47.4)	188 (32.4)	16.539	<0.001
Present	56 (22.0)	144 (56.5)	54 (27.0)		
Health Disease					
Absent	142 (18.9)	374 (49.7)	237 (31.5)	4.011*	0.107
Present	3 (11.1)	19 (70.4)	5 (18.5)		
Locomotor Disability					
Absent	99 (15.0)	325 (49.2)	237 (35.9)	73.176	<0.001
Present	46 (38.7)	68 (57.1)	5 (4.2)		
Total	145 (18.6)	393 (50.4)	242 (31.0)		

Note. *Fischer's Exact Test used

Table 3: Distress levels in study participants according to socio-economic support (n=780)

Variables	Severe distress n (%)	Mild distress n (%)	Normal n (%)	Chi-Square	P value
Financial Condition					
Stable	13 (7.7)	97 (57.7)	58 (34.5)	18.9	<0.001
Not stable	132 (21.6)	296 (48.4)	184 (30.1)		
Physical/ Mental abuse					
Absent	113 (15.7)	373 (51.7)	235 (32.6)	43.1	<0.001
Present	32 (54.2)	20 (33.9)	7 (11.9)		
Social Support					
Present	115 (15.9)	368 (51.0)	239 (33.1)	42.2	<0.001*
Absent	30 (51.7)	25 (43.1)	3 (5.2)		
Total	145 (18.6)	393 (50.4)	242 (31.0)		

Note. *Fischer's Exact Test used

Table 4: Factors affecting distress among study participants (n=780)

Variable	OR	95%CI	P Value	aOR	95% CI	P value
Age group (years)						
60-69	1					
70-79	9.647	5.341-17.425	< 0.01	6.993	3.611-13.545	< 0.001
80-89	7.838	3.714-16.540	< 0.01	2.692	1.104-6.567	0.03
90-99	-	0.000	0.99	-	0.000	0.99
Sex						
Males	1					
Females	2.612	1.881-3.627	< 0.01	2.790	1.624-4.791	< 0.001
Education						
Illiterate	1					
Primary	1.210	0.656-2.234	0.54	1.720	0.824-3.587	0.14
High school	0.644	0.443-0.936	0.02	1.331	0.833-2.126	0.23
College	0.386	0.217-0.688	< 0.01	0.534	0.241-1.186	0.12
Occupation						
Unemployed	1					
Unskilled	0.130	0.075-0.227	< 0.01	0.454	0.221-0.931	0.03
Semiskilled	0.228	0.097-0.540	< 0.01	0.999	0.353-2.822	0.99
Skilled	0.073	0.011-0.470	< 0.01	2.394	0.187-30.662	0.50
Professional	0.146	0.030-0.712	0.017	4.132	0.453-37.717	0.20
Homemaker	0.413	0.224-0.764	< 0.01	0.555	0.234-1.316	0.18
Socioeconomic Scale						
Class III	1					
Class IV	6.692	1.328-33.713	0.02	18.961	1.504-239.113	0.02
Class V	6.909	1.377-34.679	< 0.01	15.814	1.222-204.686	0.03
Type of family						
Nuclear	1					
Three generation	1.526	1.090-2.137	<0.014	0.879	0.579-1.334	0.54
Joint	2.117	1.141-3.926	0.017	0.989	0.479-2.046	0.97
Broken	5.473	2.854-10.492	< 0.01	2.261	1.048-4.879	0.03
Diabetes						
Non-diabetic	1					
Diabetic	1.297	0.907-1.854	0.154	1.150	0.732-1.807	0.54
Heart disease						
No heart disease	1					
Heart disease	2.021	0.756-5.402	0.16	1.847	0.608-5.610	0.27
Hypertension						
Normotensive	1					
Hypertensive	2.012	1.421-2.849	< 0.01	1.403	0.913-2.156	0.12
Locomotor disability						
Absent	1					
Present	12.744	5.132-31.646	< 0.01	7.161	2.600-19.722	< 0.01
Financial instability						
Absent	1					
Present	1.226	0.854-1.761	0.26	1.596	1.015-2.509	0.04
Lack of social support						
Absent	1					
Present	9.072	2.809-29.297	< 0.01	3.601	0.998-13.049	0.05
Physical/ Mental abuse						
Absent	1					
Present	3.592	1.607-8.029	< 0.01	1.493	0.572-3.897	0.41

Note. Cox & Snell R square- 0.260; Nagelkerke R Square-0.366, *Binary logistic regression

proportion of those with severe distress having locomotor disability was more than the proportion of those without locomotor disability. The differences in the proportion of different levels of distress regarding locomotor disability were statistically significant. (p value: <0.001) (Table 2)

Among the elderly who faced financial crisis 132 (21.6%) had severe distress and 296 (48.4%) had mild distress. The proportion of elderly with severe distress having financial instability was more than the proportion of those without financial instability. The differences in the proportion of different levels of distress regarding financial instability were statistically significant. (p value: <0.001)

Among the older persons, 32 (54.2%) who faced physical/mental abuse had severe distress and 20 (33.9%) had mild distress. The proportion of study participants with severe distress having physical/ mental abuse was more than the proportion of study participants without physical/ mental abuse. The differences in the proportion of different levels of distress regarding physical/mental abuse was statistically significant. (p value: <0.001)

Out of those whom had lack of social support 30 (51.7%) had severe distress and 25 (43.1%) had mild distress. An increasing proportion of severe distress was noted in study participants with lack of social support as compared to other study participants who had social support. The differences in the proportion of different levels of distress regarding lack of social support were statistically significant. (p value: <0.001) (Table 3)

Factors affecting General health among the 780 study participants showed significant association with those aged 70-79 years (OR: 9.647, 95% CI: 5.341-17.425), 80-89 years (OR: 7.838, 95% CI: 3.714-16.540), females (OR: 2.612, 95% CI: 1.881-3.627), college education (OR: 0.386, 95% CI: 0.217-0.688), unskilled labourers (OR: 0.130, 95% CI: 0.075-0.227), semiskilled labourers (OR: 0.228, 95% CI: 0.097-0.540), skilled labourers (OR: 0.073, 95% CI: 0.011-0.470)

homemakers (OR: 0.413, 95% CI: 0.224-0.764), Class V socio economic status (OR: 6.909, 95% CI: 1.377-34.679), hypertensive study participants (OR: 2.012, 95% CI: 1.421-2.849) those with locomotor disability (OR: 12.744, 95% CI: 5.132-31.646), those with lack of social support (OR: 9.072, 95% CI: 2.809-29.297), those who had undergone physical/ mental abuse (OR: 3.592, 95% CI: 1.607-8.029).

However, in Binomial logistic regression showed significant association with study participants aged 70-79 years (aOR: 6.993, 95% CI: 3.611-13.545), females (aOR: 2.790, 95% CI: 1.624-4.791), those with locomotor disability (aOR: 7.161, 95% CI: 2.600-19.722). (Table 4)

Discussion:

In the present study, to assess the mental health of the elderly population, General Health Questionnaire (GHQ-12) using the Likert scoring method (0-1-2-3) was used.^[6] GHQ 12 categorized 393 (50.4%) participants having mild distress while 145 (18.6 %) of them were having severe distress.

Independent factors contributing to the risk of poor general health were evaluated by logistic regression model. It was observed that increasing age, females, occupation, lower socioeconomic status, broken family, hypertension, lack of social support, locomotor disability, and physical/mental abuse were independent risk factors of distress in the present study.

After having adjusted for other factors, the odds of study subjects with poor general health were seen among those aged 70-79 years was 6.9 times more as compared to those aged 60-69 years; the odds of study subjects were 2.7 times more for females as compared to males and 7.1 times more for study subjects with locomotor disability.

Various community-based studies using GHQ-12 in the elderly it was found that among 50%-55% of the elderly screened were recognized to be psychologically distressed. Female sex, illiteracy, and multiple comorbidities were the factors that were associated with

higher cutoff scores on GHQ-12 proposed here and psychiatric morbidity thereof.^[9-11] These findings are similar to the present study.

Various research studies indicate that 10% of those over 60 have limited physical mobility, and 10% are hospitalised at any given moment. These percentages increase as people age. More than half of people over 70 have one or more chronic illnesses. The chronic conditions typically include cancer, coronary heart disease, and high blood pressure. It is projected that NCD-related disability will increase and contribute to a higher proportion of overall national disability, in step with the greying of the population.^[12-15] In the present study also it is seen that there is deterioration of health with increasing age and chronic conditions like hypertension is showing statistically significant difference.

Population based study done on the health of the elderly found that women are poorer and suffer more morbidity than men in old age, although their death rates are lower. Further, older women in India report poorer self-reported health and experience greater immobility compared with men. In the present study also it is noted that health and wellbeing among men is better than among women.^[16,17]

Study by World Health Organization's on Global Ageing and adult health Indian survey found that inequalities in economic factors contributed to health inequalities among older individuals in India. A Sample Survey conducted in the rural areas of the Varanasi district of Uttar Pradesh, explains that illiteracy and poverty are found to have their own impact on health during aging. Economic inequalities were largest for functional impairment and disability. Data from the 60th round of the National Sample Survey (NSS) suggests that poor health status is more concentrated among the socioeconomically disadvantaged older population. In the present study also elderly belonging to lower socioeconomic status had poor health.^[18-21]

A study done by using the India Human Development Survey found that the lowest rates of short-

term sickness are found among older persons who live in multigenerational households. The greatest health benefits are experienced by those who live with their spouse, adult children, and young grandkids. In the present study also it is seen that elderly living with family is having better health as compared to those living in broken family.^[22]

A study by Marion et al.^[23], found that the average age at death and the average age at disability onset are the main points of contention. A healthy elder population would benefit from a shorter period of dependency before death if there is a chance to delay the onset of disability. A cross-sectional national community-dwelling survey in India in 2017-2018 found that lack of social support & loneliness is associated with poor physical health, poor mental health and health risk behaviour (physical inactivity), emphasising the need to consider loneliness in various physical and mental health contexts among the elderly. In the present study also it is seen that locomotor disability and lack of social support results in poor health.^[24]

Various cross-sectional studies found that abuse against the elderly is recognized as a fundamental challenge to elderly health in India. 11%-15% of sixty-year-olds have experienced at least one type of elderly abuse and it affects their health.^[25-27]

Limitations:

Characteristics of this sample may not represent the broader elderly population in different regions or contexts. Also, the study cannot track the progression of health issues or interventions over the long term.

Conclusion:

As per GHQ-12, in 393 (50.4%) older persons had mild distress while 145 (18.6%) had severe distress. It was observed that stress was seen with increasing age, females, unemployment, lower socioeconomic status, broken family, hypertension, lack of social support, disability, and abuse. Research on health in older persons is not a national priority despite the fact that these are common among the population, with related

comorbidities, greater rates of impairment and symptom severity, and higher health care use and expenditures. In addition to financing and programmatic priorities that do not prioritise older persons, age-related difficulties complicate clinical research in the geriatric population. Late-life clinical researchers will be able to carry out more clinically significant projects and improve the use of evidence-based medicine if these modifiable hurdles are identified and innovative, scalable solutions with widespread adoption are developed.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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