Indian Journal of Physiotherapy and Rehabilitation Science

Online ISSN 2583-4304 Vol: 5, Issue: 2 Apr. 2026

Fall Risk And Emotional Distress In Institutionalized Geriatric Population – A Cross-Sectional Study

Shyni M. (MPT) [1]
Professor and Head of the Department,
Believers Church Medical College Hospital,
Kuttapuza, Thiruvalla, Kerala.
Dr. Sandhiya M. (PhD) [2]
Assistant Professor,
School of Physiotherapy,
Institute of Science Technology and Advanced Studies,
Pallavaram, Thalambur, Periyapalayam, Chennai.
Dr. P. Senthil Selvam (PhD) [3]
Professor and Head of the Department,
School of Physiotherapy, Vels Institute of Science,
Technology and Advanced Studies,
Pallavaram, Thalambur, Periyapalayam, Chennai.
Email - sanahana12@gmail.com

Received: 02nd Apr. 2026
Revised: 22nd Apr. 2026
Accepted: 24th Apr. 2026

ABSTRACT

Background: Falls among older adults represent a major public health concern, particularly in institutional settings where physical limitations and psychological vulnerability are more prevalent. Emotional distress has been increasingly identified as a contributing factor to fall risk.

Materials and Methods: A cross-sectional observational study was conducted among 142 institutionalized adults aged ≥60 years. Fall risk was assessed using a standardized fall risk assessment tool, and emotional status was evaluated using the Positive and Negative Affect Schedule. Descriptive statistics were used to summarize the data. The Chi-square test and one-way analysis of variance (ANOVA) were applied to assess associations and group differences. A p-value < 0.05 was considered statistically significant.

Results: Most participants were aged 75–85 years. A significant association was observed between age and fall risk ($p < 0.05$), with individuals aged ≥85 years showing the highest risk. No significant association was found between gender and fall risk ($p > 0.05$), although females had a slightly higher proportion of high-risk cases. Participants aged 75–85 years demonstrated lower positive affect and higher negative affect scores ($p < 0.05$). Increased emotional distress was associated with a higher likelihood of fall risk.

Discussion: The findings indicate that both age-related physical decline and emotional distress contribute to fall risk. Reduced emotional stability may influence confidence and mobility, thereby increasing vulnerability to falls.

Conclusion: Fall risk among institutionalized older adults is influenced by age and emotional distress. Addressing both physical and psychological factors may improve fall prevention strategies.

Keywords: Emotional distress, fall risk, institutionalized elderly, positive affect, negative affect.

INTRODUCTION

Global life expectancy has increased significantly over recent decades due to advancements in healthcare, nutrition, and lifestyle, resulting in a rapidly growing elderly population worldwide. This demographic transition has led to an increased burden of age-related conditions, among which falls represent a major public health concern[1]. Falls are a leading cause of injury, disability, and mortality among older adults, and in India, their prevalence poses a substantial challenge to healthy and active ageing[2].

Previous research has identified multiple intrinsic and extrinsic risk factors contributing to falls, including comorbidities, reduced mobility, medication use, cognitive decline, and environmental hazards[3–4]. Additional

Indian Journal of Physiotherapy and Rehabilitation Science
Online ISSN 2583-4304 Vol: 5, Issue: 2 Apr. 2026

evidence highlights the role of visual impairment and chronic health conditions in increasing fall susceptibility[12, 15]. These factors are often more pronounced in institutionalized older adults due to higher levels of dependency, reduced physical activity, and limited social interaction, further increasing vulnerability.

In recent years, psychological determinants—particularly emotional distress—have gained attention as significant contributors to fall risk. Emotional distress, characterized by symptoms of anxiety, depression, and reduced psychological well-being, can adversely affect balance, gait, attention, and overall functional performance[5–7]. Studies have demonstrated that depression and anxiety impair physical and cognitive functioning, thereby increasing susceptibility to falls[13–14]. Moreover, fear of falling can lead to activity restriction, physical deconditioning, and a higher likelihood of recurrent falls[13–14].

A bidirectional relationship has also been established between falls and emotional distress, wherein individuals who experience falls may develop increased fear, anxiety, and depressive symptoms, further exacerbating functional decline and reducing quality of life[8–9]. Evidence from institutional settings supports the strong association between fall risk, fear of falling, and depressive symptoms, even in studies with moderate sample sizes[16].

Standardized assessment tools such as the Positive and Negative Affect Schedule (PANAS) and the Falls Risk Assessment Tool (FRAT) provide reliable methods to evaluate emotional status and fall risk, respectively[10–11]. While FRAT has demonstrated predictive utility in identifying individuals at risk[10, 11], its effectiveness may vary depending on individual and contextual factors[10].

Despite the growing body of evidence, most studies have primarily focused on physical and environmental determinants of falls, with relatively limited emphasis on the role of emotional distress, particularly among institutionalized older adults. Therefore, the present study aims to examine the association between fall risk and emotional distress in this population, contributing to a more comprehensive understanding and supporting the development of integrated fall prevention strategies.

OBJECTIVES

1. To evaluate the extent of fall risk among institutionalized geriatric population with FRAT.
2. To measure the magnitude of emotional distress among institutionalized geriatric population with PANAS GEN Score
3. To identify the relationship between Fall risk and emotional distress, and to determine the Influence of demographic discrepancy on fall risk within the study population.

MATERIALS AND METHODOLOGY

Study Design:

A cross-sectional observational study was conducted to examine the association between fall risk and emotional distress among institutionalized older adults.

Study Setting and Participants:

The study was carried out at a single geriatric rehabilitation Centre, Great Jubilee Memorial Alphonsa Abhaya Bhavan, located in Alphonsapuram, Kottayam, Kerala. A total of 142 older adults aged 60 years and above were recruited using a convenience sampling method. Participants were selected from residents available during the study period.

Sample Size Consideration:

The sample size of 142 participants was determined based on feasibility and the available population within the selected rehabilitation Centre during the study period. Although a formal power analysis was not conducted, the sample size is comparable to or larger than those used in similar cross-sectional studies among institutionalized older adults, which have demonstrated statistically significant associations between fall risk and psychological factors. Therefore, the selected sample is considered adequate to detect meaningful relationships and to support the study objectives within this setting.

Eligibility Criteria:

Inclusion Criteria:

- Male and female participants aged ≥60 years
- Residents of the selected rehabilitation Centre
- Ability to understand and follow simple verbal instructions

- Willingness to participate with informed consent

(Note: Participants were not selected based on the presence of fear of falling; this was assessed as part of the study variables.)

Exclusion Criteria:

- Recent injuries such as fractures, sprains, or strains
- Acute medical conditions at the time of assessment
- Severe chronic illnesses significantly affecting mobility
- Diagnosed neurological disorders (e.g., stroke, Parkinsonism) affecting balance and gait
- Severe cognitive impairment interfering with participation

Comorbidity Consideration: Common comorbidities such as diabetes and hypertension were not excluded, as they are prevalent in the elderly and reflect real-world conditions. However, severe conditions significantly affecting mobility were excluded to reduce confounding effects.

Arthritis Consideration: Participants with mild to moderate arthritis were included, while those with severe mobility limitations were excluded.

Comprehensive Geriatric Assessment (CGA): A structured Comprehensive Geriatric Assessment was performed for all participants. Demographic, clinical, and functional information was collected through medical record review and confirmed through participant interviews using a predesigned assessment form.

Assessment of Fall Risk:
Fall risk was assessed using the Falls Risk Assessment Tool (FRAT), which evaluates multiple domains including history of falls, medication use, psychological status, and cognitive function. Each item is scored according to standardized guidelines, and the total score categorizes participants into:

- Low risk: 5–11
- Medium risk: 12–15
- High risk: 16–20

Higher scores indicate greater risk of falling.

Assessment of Emotional Distress:
Emotional distress was measured using the Positive and Negative Affect Schedule – General (PANAS-GEN). The tool consists of two subscales:

- Positive Affect (10 items)
- Negative Affect (10 items)

Each item is rated on a 5-point Likert scale ranging from 1 (very slightly or not at all) to 5 (extremely). Mean scores were calculated separately for both subscales. Higher negative affect scores indicate greater emotional distress, whereas higher positive affect scores reflect better emotional well-being.

Data Collection Procedure: Data collection was conducted in a quiet and comfortable setting within the rehabilitation Centre. Demographic details such as age and gender were recorded. Subsequently, FRAT and PANAS GEN assessments were administered individually by the investigator following standardized procedures to ensure consistency.

Statistical Analysis:

- Descriptive statistics (mean, SD, %)
- Chi-square test
- One-way ANOVA
- Significance level: $p < 0.05$

(Note: Additional analyses such as correlation and regression were not included, as the primary objective was to examine group differences and associations.)

RESULTS

Age and Gender wise distribution of the Study Population:

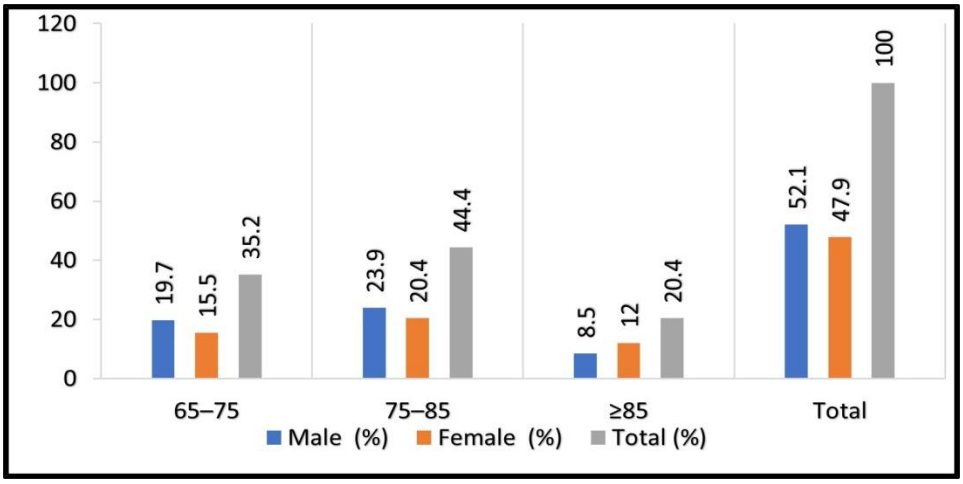
A total of 142 institutionalized older adults were included in the study. The distribution of participants according to age group and gender is presented in Table 1. The majority of participants belonged to the 75–85 years' age group (44.3%), followed by 65–75 years (35.2%) and ≥85 years (20.4%). Males constituted 52.1% of the study population, while females accounted for 47.9%.

Indian Journal of Physiotherapy and Rehabilitation Science
Online ISSN 2583-4304 Vol: 5, Issue: 2 Apr. 2026

Table 1: Age and Gender wise distribution of the Study Population

Age Group	Male n (%)	Female n(%)
65–75	28 (19.7)	22 (15.5)
75–85	34 (23.9)	29 (20.4)
≥85	12 (8.4)	17 (11.9)

Figure 1: Age and Gender wise distribution of the Study Population



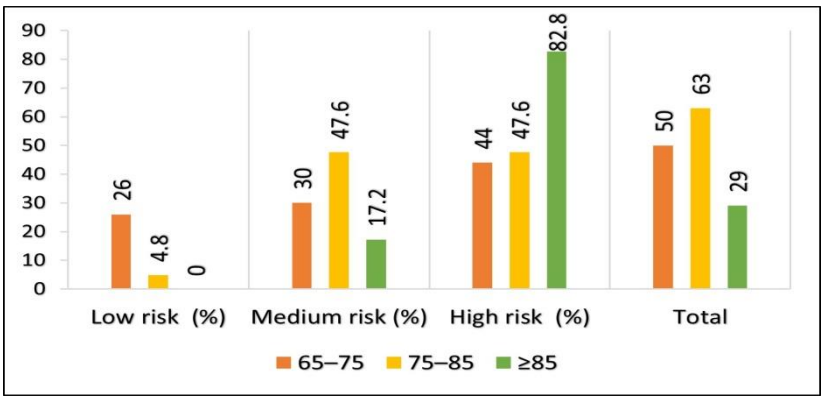
Association between Age Group and Fall Risk:

The association between age group and fall risk is shown in Table 2. A significant association was observed ($\chi^2 = 18.72$, $p = 0.001$). Participants aged ≥85 years showed the highest fall risk (82.8%).

Table 2: Association between Age Group and Fall Risk

Age Group	Low Risk	Medium Risk	High Risk	χ^2	p-value
65–75	13 (26.0)	15 (30.0)	22 (44.0)	18.72	0.001
75–85	3 (4.8)	30 (47.6)	30 (47.6)		
≥85	0 (0.0)	5 (17.2)	24 (82.8)		

Figure 2: Association between Age and Fall Risk



Indian Journal of Physiotherapy and Rehabilitation Science
Online ISSN 2583-4304 Vol: 5, Issue: 2 Apr. 2026

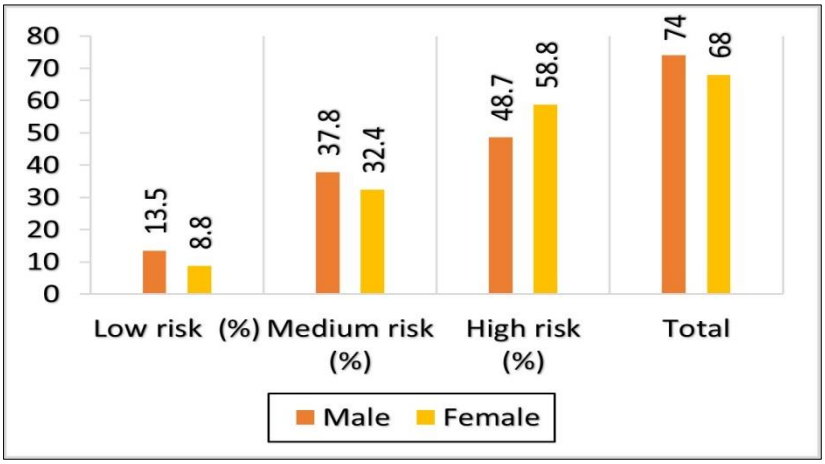
Association between Gender and Fall Risk

No statistically significant association was found in Table 3, ($\chi^2 = 2.14$, $p = 0.343$), although females showed a slightly higher proportion of high-risk cases.

Table 3: Association between Gender and Fall Risk

Gender	Low Risk n(%)	Medium Risk n(%)	High Risk n (%)	Total n(%)	χ^2 value	p-value
Male (n = 74)	10 (13.5)	28 (37.8)	36 (48.7)	74 (52.1)	2.14	0.343
Female (n = 68)	6 (8.8)	22 (32.4)	40 (58.8)	68 (47.9)		

Figure 3: Association between Gender and Fall Risk



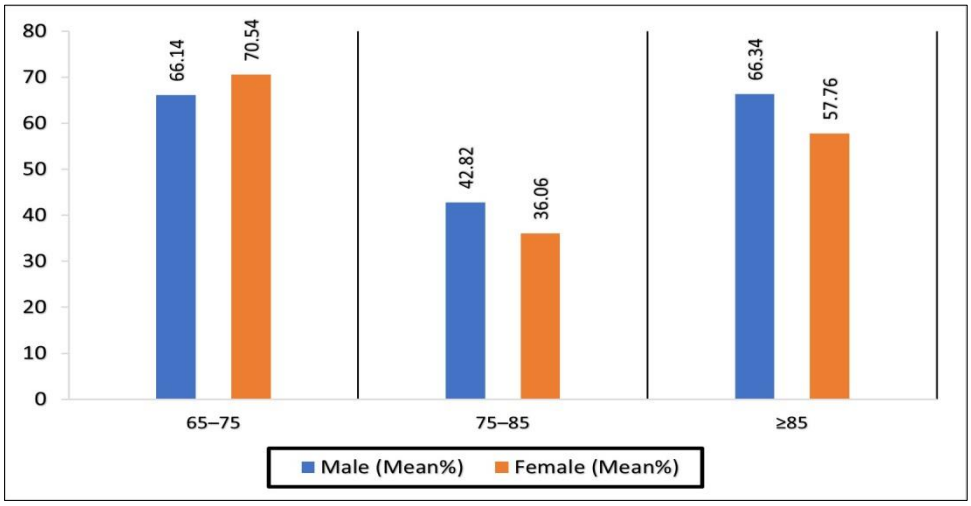
Positive Affect Scores by Age and Gender

Participants aged 75–85 years demonstrated significantly lower positive affect and higher negative affect scores ($F = 9.21$ and $p < 0.05$).

Table 4: Positive Affect Scores by Age and Gender

Age Group (years)	Male (Mean)	Female (Mean)	F value	p-value
65–75	66.14	70.54	9.21	<0.05
75–85	42.82	36.06		
≥85	66.34	57.76		

Figure 4: Positive Affect Scores by Age and Gender



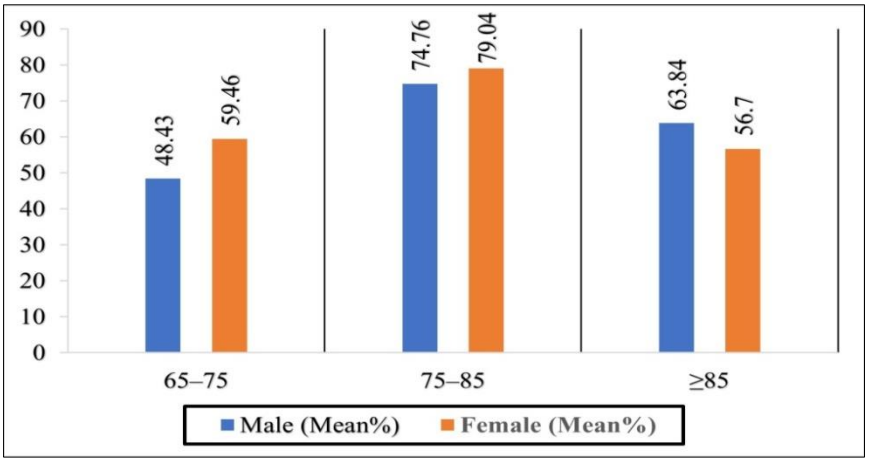
Negative Affect Scores by Age and Gender

Participants aged 75–85 years demonstrated significantly lower positive affect and higher negative affect scores ($F = 11.36$, $p < 0.05$).

Table 5: Negative Affect Scores by Age and Gender

Age Group (years)	Male (Mean)	Female (Mean)	F value	p-value
65–75	48.43	59.46	11.36	<0.05
75–85	74.76	79.04		
≥85	63.84	56.70		

Figure 5: Negative Affect Scores by Age and Gender



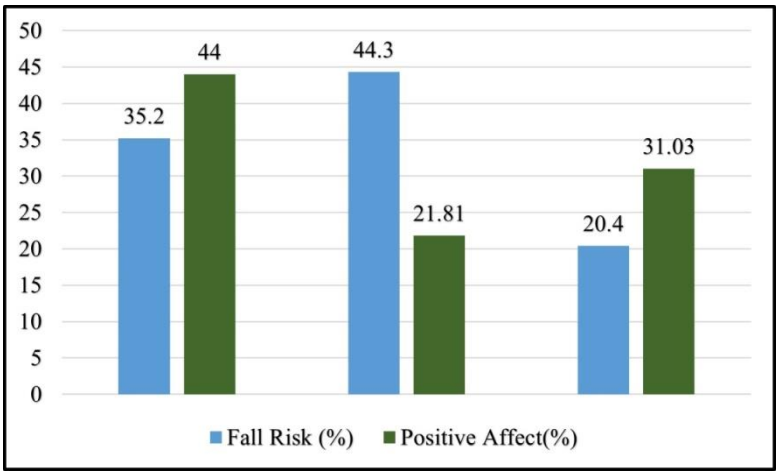
Association between Fall Risk and Positive Affect

Lower positive affect was observed among participants with higher fall risk, indicating a significant association.

Table 6: Association between Fall Risk and Positive Affect

Age Group (years)	Total (n)	Fall Risk (%)	Positive Affect n (%)
65–75	50	35.2	22 (44.0)
75–85	63	44.3	15 (23.8)
≥85	29	20.4	9 (31.0)

Figure 6: Association between Fall Risk and Positive Affect



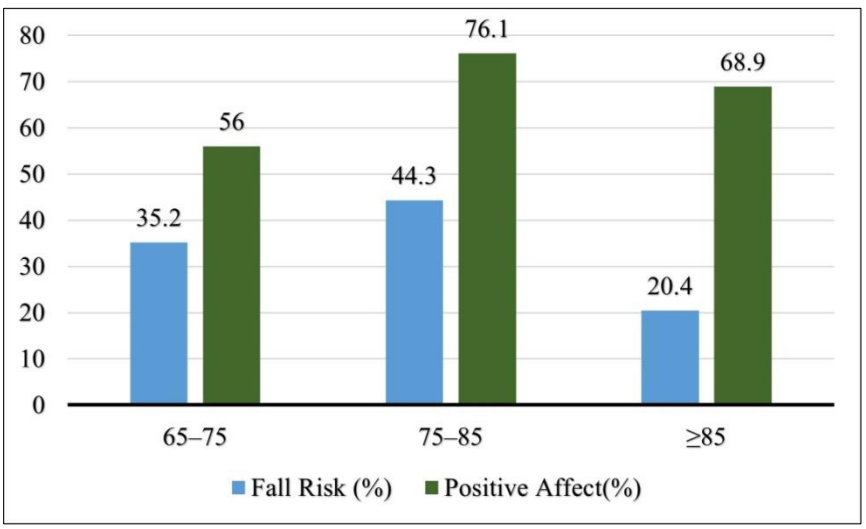
Association between Fall Risk and Negative Affect

Higher negative affect was observed among participants with higher fall risk, indicating a significant association.

Table 7: Association between Fall Risk and Negative Affect

Age Group (years)	Total(n)	Fall Risk (%)	Negative Affect n(%)
65–75	50	35.2	28(56.0)
75–85	63	44.3	48 (76.1)
≥85	29	20.4	20 (68.9)

Figure 7: Association between Fall Risk and Negative Affect



Indian Journal of Physiotherapy and Rehabilitation Science
Online ISSN 2583-4304 Vol: 5, Issue: 2 Apr. 2026

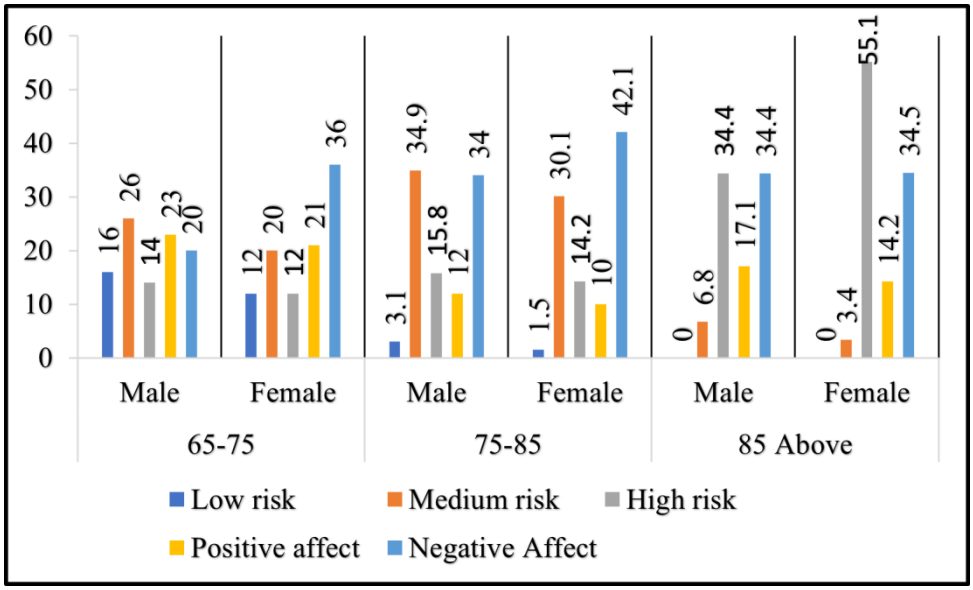
Cross-tabulation of age, gender, and fall risk (N = 142)

Table 8 presents the cross-tabulation of age, gender, fall risk, and emotional factors. Increasing age was associated with higher fall risk in both genders. Female participants, particularly in the ≥85 years' age group, demonstrated a higher proportion of high fall risk and higher negative affect scores compared to males.

Table 8: Cross-tabulation of age, gender, and fall risk (N = 142)

Age Group (years)	Gender	Low Risk n (%)	Medium Risk n(%)	High Risk n(%)
65–75	Male	16.0	26	14
	Female	12.0	20	12
75–85	Male	3.1	34.9	15.8
	Female	1.5	30.1	14.2
≥85	Male	0.0	6.8	34.4
	Female	0.0	3.4	55.1

Figure 8: Cross-Tabulation of Age, Gender, and Fall Risk (N = 142)



DISCUSSION

The present study examined the association between fall risk and emotional distress among institutionalized older adults. The findings indicate that advancing age is significantly associated with an increased risk of falls, with participants aged ≥85 years demonstrating the highest proportion of high fall risk. This observation is consistent with previous research, which has identified age-related decline in balance, muscle strength, and functional mobility as key contributors to falls among older adults. [3–4]

In the current study, no statistically significant association was found between gender and fall risk, although a slightly higher proportion of females were categorized as high risk. This finding aligns with earlier studies suggesting that while females may report a higher incidence of falls, gender alone may not be a strong independent predictor when other factors are considered. [2]

An important finding of this study is the significant association between emotional distress and fall risk. Participants in the 75–85 years' age group exhibited lower positive affect and higher negative affect scores, indicating greater emotional distress. These findings are supported by existing literature, which suggests that psychological factors such as depression and anxiety can impair balance, gait, and cognitive processing, thereby increasing susceptibility to falls. [5–7]

Furthermore, the results suggest a potential bidirectional relationship between emotional distress and falls. Higher levels of negative affect were observed among participants with greater fall risk, which may reflect increased fear of falling, reduced confidence, and activity restriction. Previous studies have similarly reported that emotional distress can both contribute to and result from falls, leading to a cycle of declining physical and psychological health. [8–9]

From a clinical perspective, these findings highlight the importance of incorporating psychological assessment into fall risk evaluation. Interventions focusing solely on physical rehabilitation may not be sufficient. Evidence suggests that integrated approaches, including balance training, cognitive-behavioral strategies, and emotional support, can be more effective in reducing fall risk and improving overall well-being among older adults. [5–7]

The adequacy of the sample size further strengthens the study findings. The inclusion of 142 participants, which exceeds sample sizes used in comparable cross-sectional studies, enhances the reliability and stability of the results and improves the ability to detect meaningful associations between fall risk and emotional distress. Similar studies conducted among institutionalized older adults have demonstrated significant associations using smaller samples, supporting the methodological soundness of the present study[16].

However, the study has certain limitations. Being a Single-Centre study with a convenience sampling method, the findings may not be generalizable to the broader population. Additionally, the cross-sectional design limits the ability to establish causality between emotional distress and fall risk.

CONCLUSION

Fall risk among institutionalized older adults is significantly associated with age and emotional distress. A combined physical and psychological approach is essential for effective fall prevention.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

ACKNOWLEDGMENT

The research received no specific funding from any public, commercial, or non-profit organization. The authors express their sincere gratitude to the management and health care providers of the Geriatric Rehabilitation Centre – Great Jubilee Memorial Alphonsa Abhaya Bhavan, Kottayam, for their support and cooperation during the study. The authors thank all participants for their time, willingness, and valuable contributions to this research. Sincere appreciation is extended to the faculty of the School of Physiotherapy, Vels Institute of Science, Technology and Advanced Studies (VISTAS), Chennai, for their guidance and encouragement throughout the study.

REFERENCE

1. Aladul MI, Patel B, Chapman SR. Impact of the introduction of a falls risk assessment toolkit on falls prevention and psychotropic medicines' utilization in Walsall: An interrupted time series analysis. BMJ Open. 2021;11: e039649. https://doi.org/10.1136/bmjopen-2020-039649
2. Devassy SM, Scaria L. Intrinsic risk factors associated with fall risk among older adults in Kerala, India. Clin Epidemiol Glob Health. 2023;23: e18737. https://doi.org/10.1016/j.heliyon.2023.e18737
3. Dhargave P, Sendhilkumar R. Prevalence of risk factors for falls among elderly people living in long-term care homes. J Clin Gerontol Geriatr. 2016;7(3):99–103. https://doi.org/10.1016/j.jcgg.2016.03.004
4. Dsouza SA, Rajashekar B, Dsouza HS, Kumar KB. Falls in Indian older adults: A barrier to active ageing. Asian J Gerontol Geriatr. 2014.

5. Erbacher MK, Schmidt KM, Boker SM, Bergeman CS. Measuring positive and negative affect in older adults over 56 days. J Appl Meas. 2012;13(2):146–164. https://pubmed.ncbi.nlm.nih.gov/22805359/
6. Iaboni A, Flint AJ. The complex interplay of depression and falls in older adults. Am J Geriatr Psychiatry. 2013;21(5):484–492. https://doi.org/10.1016/j.jagp.2013.01.008
7. Kvelde T, McVeigh C, Toson B, Greenaway M, Lord SR, Delbaere K. Depressive symptomatology as a risk factor for falls in older people. J Am Geriatr Soc. 2013;61(4):507–512. https://doi.org/10.1111/jgs.12209
8. Palumbo P, Klenk J, Cattelani L, Bandinelli S, Ferrucci L, Rapp K. Predictive performance of a fall risk assessment tool. J Am Med Dir Assoc. 2016;17(12): 1145.e1–1145.e6. https://doi.org/10.1016/j.jamda.2016.07.015
9. Rajkumar AP, Thangadurai P, Senthilkumar P, Gayathri K, Prince M, Jacob KS. Depression among the elderly in rural India. Int Psychogeriatr. 2009;21(4):667–672. https://doi.org/10.1017/S1041610209008527
10. Roshni SS, Lilabi MP, Krishna Raj JS, Bindu V, Ageesh TG. Depression among elderly population. Natl J Community Med. 2023. https://doi.org/10.55489/njcm.140120232528
11. Santiago LM, Mattos IE. Depressive symptoms in institutionalized older adults. Rev Saude Publica. 2014. https://doi.org/10.1590/S0034-8910.2014048004965
12. Swathi HJ, Anupama K, Shwetha TM, Anitha BP. Depression among the elderly. Cureus. 2024;16:e96866. https://doi.org/10.7759/cureus.96866
13. World Health Organization. Ageing and health. Geneva: WHO; 2025. https://www.who.int/
14. Xavier MAN, Krishnan UV. Geriatric depression among institutionalized elderly. Int J Community Med Public Health. 2024. https://doi.org/10.18203/2394-6040.ijcmph20242556
15. Xing L, Bao Y, Wang B, Shi M, Wei Y, Huang X. Falls due to balance disorders in the elderly. Front Neurol. 2023;14:1128092. https://doi.org/10.3389/fneur.2023.1128092
16. Bowas S, Loganathan S, Raghuram P, Jaivignesh S. Fall risk, fear of falling and their association with depressive symptoms among institutionalized older adults: A cross-sectional study. J Assoc Med Sci. 2026;59(2):105–112. https://doi.org/10.12982/JAMS.2026.042