ROI Assessment

The Economic Impact of Fall Prevention Programs

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The Growing Challenge of Falls Among Older Adults

36M

Falls Annually

Falls occur each year among adults aged 65+ in the United States

3M+

ER Visits

Emergency department visits result from falls in older adults

32K+

Deaths

Fatal injuries occur annually due to falls in this population

$80B

Healthcare Costs

Annual medical costs related to non-fatal falls, mostly absorbed by Medicare.

Falls are the leading cause of fatal and non-fatal injuries among adults aged 65 and older, resulting in fractures, traumatic brain injuries, loss of independence, and long-term functional decline.

Evidence-Based Fall Prevention Programs

Evidence-based fall prevention programs are structured interventions designed to reduce fall risk by improving physical function, confidence, and awareness of risk factors. These programs are backed by research and approved by federal agencies such as the Administration for Community Living.

They include a variety of approaches focusing on:

- Strength and balance training
- Behavior change strategies
- Home safety assessments
- Self-efficacy building

Key Fall Prevention Programs

A Matter of Balance

Group-based program designed to reduce fear of falling and increase physical activity through facilitated discussions, role-playing, and gentle exercises.

Enhance Fitness

Community-based group exercise program focusing on cardiovascular endurance, muscle strength, flexibility, and balance, led by certified instructors.

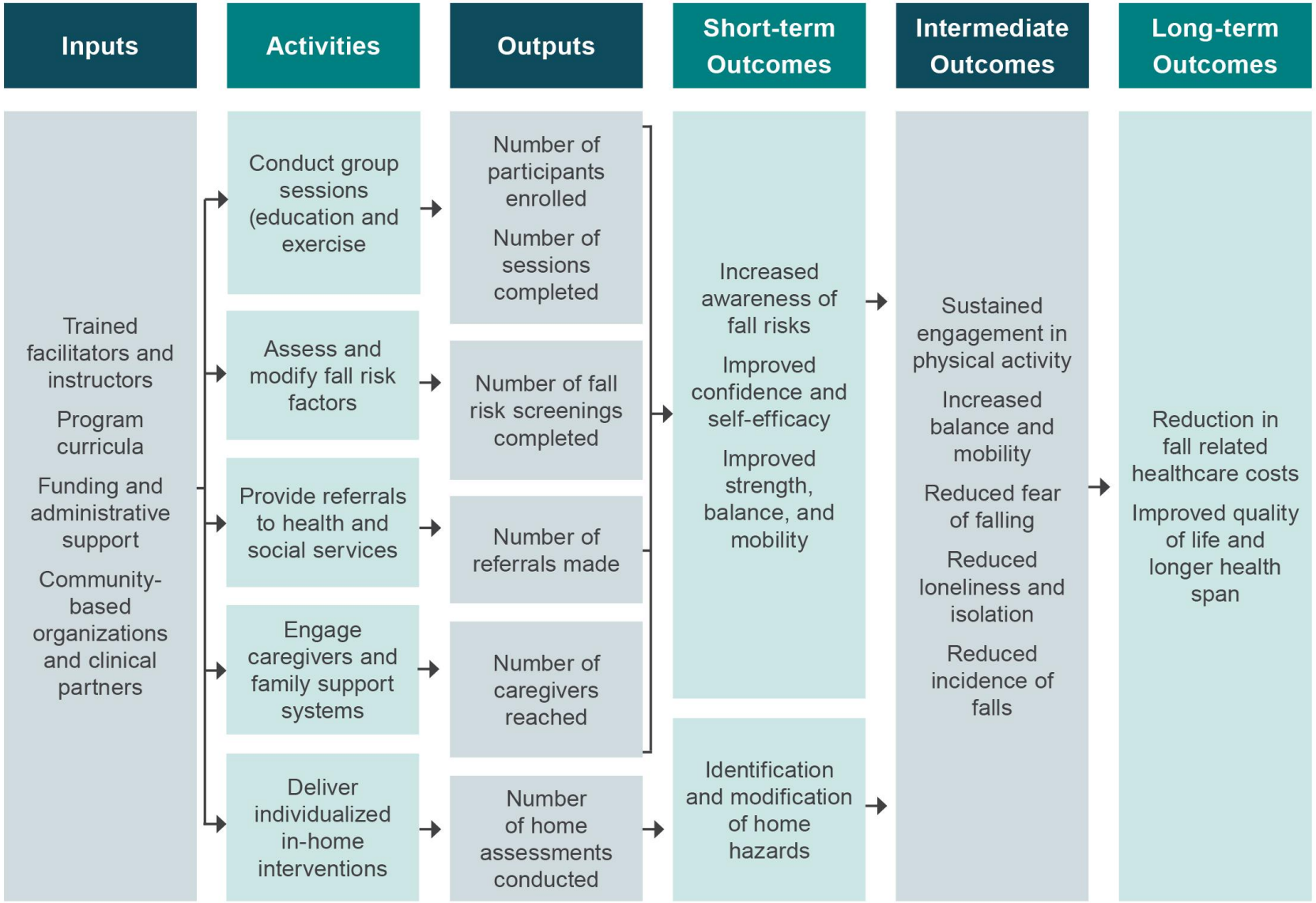
Home Hazard Removal

In-home intervention using occupational therapists to identify and eliminate fall hazards in the home environment through standardized assessments.

Tai Chi Programs

Structured movement programs like Tai Ji Quan: Moving for Better Balance that improve balance, flexibility and strength through flowing movements.

Fall Prevention Program Logic Model



Study Objectives

The National Council on Aging (NCOA) conducted a comprehensive analysis using participant-level data from the Healthy Aging Programs Integrated Database (HAPID) to assess the impact of falls prevention initiatives at scale.

Quantify Healthcare Cost Savings

Measure reductions in fall-related emergency room visits, hospitalizations, and long-term care utilization

Measure Participant Improvements

Assess changes in physical function, confidence, fall self-efficacy, fear of falling, and social isolation

Demonstrate Economic Value

Show the return on investment for continued funding of community-based falls prevention programs

Study Methodology

1

Survey Design and Data Collection

Standardized pre-post surveys administered to participants

2

Data Cleaning and Transformation

Preparation of HAPID data for statistical analysis

3

Statistical Estimation of Program Effects

Multivariate regression modeling to isolate program impacts

4

Cost Valuation of Outcomes

Assigning dollar values to health improvements based on literature

5

ROI Calculation

Computing net benefits and return on investment ratios

6

Reporting and Sensitivity Analysis

Documenting findings with confidence intervals and alternative scenarios

Detailed Methodology: Statistical Analysis

Regression Models

- Fixed effects and random effects logistic regression for binary outcomes (er visits, hospitalization, etc.)
- Fixed effects and random effects regression for continuous scores (fall frequency)

Models controlled for covariates including age, sex, education, and number of chronic conditions to minimize confounding.

Key Outcome Measures

- Number of falls (continuous)
- Emergency room visits (binary)
- Hospitalization (binary)
- Outpatient visits (binary)
- Fear of falling (ordinal scale, 1-4)
- Self-rated health (ordinal scale, 1-5)
- Self-efficacy (scale 1-10)
- Loneliness and isolation (ordinal scales, 1-5)

The analysis estimated marginal effects and predicted probabilities to quantify the average treatment effect on participant-reported outcomes.

Detailed Methodology: Economic Valuation

Outcome Improvement Calculation

Estimated difference between pre/post measures to determine avoided incidents per participant (falls, ER visits, hospitalizations)

Cost Estimation

Applied standardized cost values from literature for each type of avoided healthcare utilization, adjusted to 2024 USD

Total Savings Calculation

Multiplied avoided incidents by associated costs across all 275,462 participants

ROI Determination

ROI = (Total Savings - Program Costs) / Program Costs

Three cost scenarios were analyzed: lower bound ($9,805 per hospitalization), mean ($25,423), and upper bound ($40,619) to account for uncertainty in healthcare cost estimates.

Participant Demographics

Variable	Mean (sd) or %	N
Age	74.77 (9.66)	213,635
Chronic Conditions	1.40 (1.82)	275,462
Female	65.1%	179,238
Male	13.7%	37,726
White	63.1%	173,905
Black/African American	6.8%	18,860
Hispanic/Latino	4.4%	199,076
Asian American	2.7%	7,438

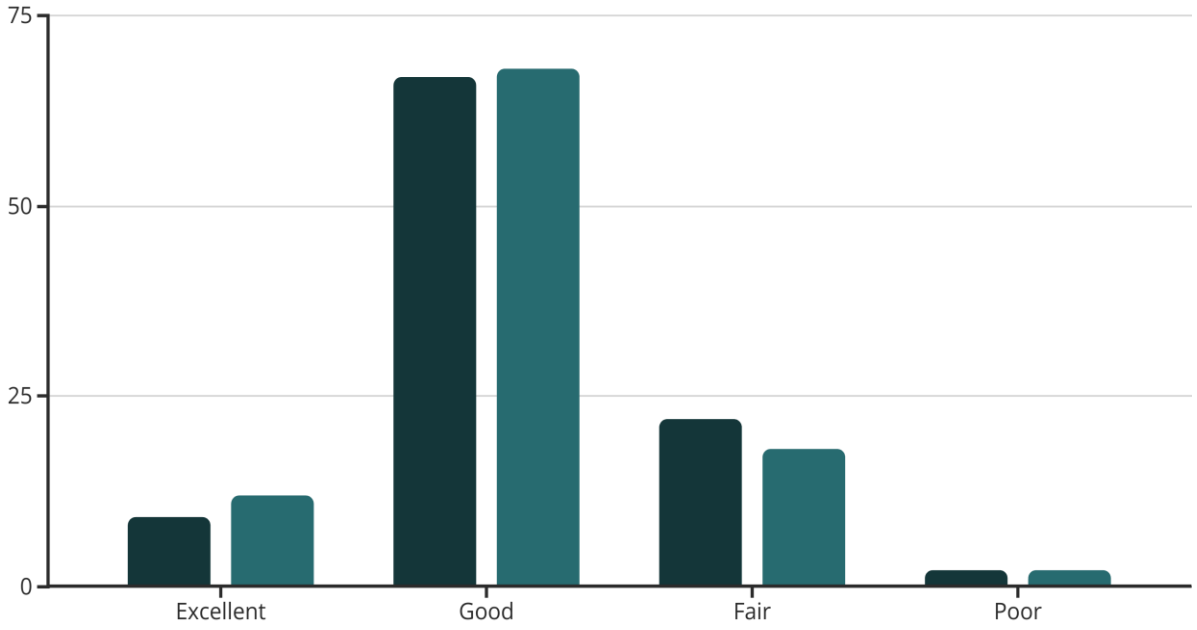
The study analyzed data from 275,462 participants enrolled in ACL-funded fall prevention programs between 2014 and 2024.

Participants completed standardized pre- and post-program surveys capturing demographics, physical activity, falls history, fear of falling, self-efficacy, and healthcare utilization.

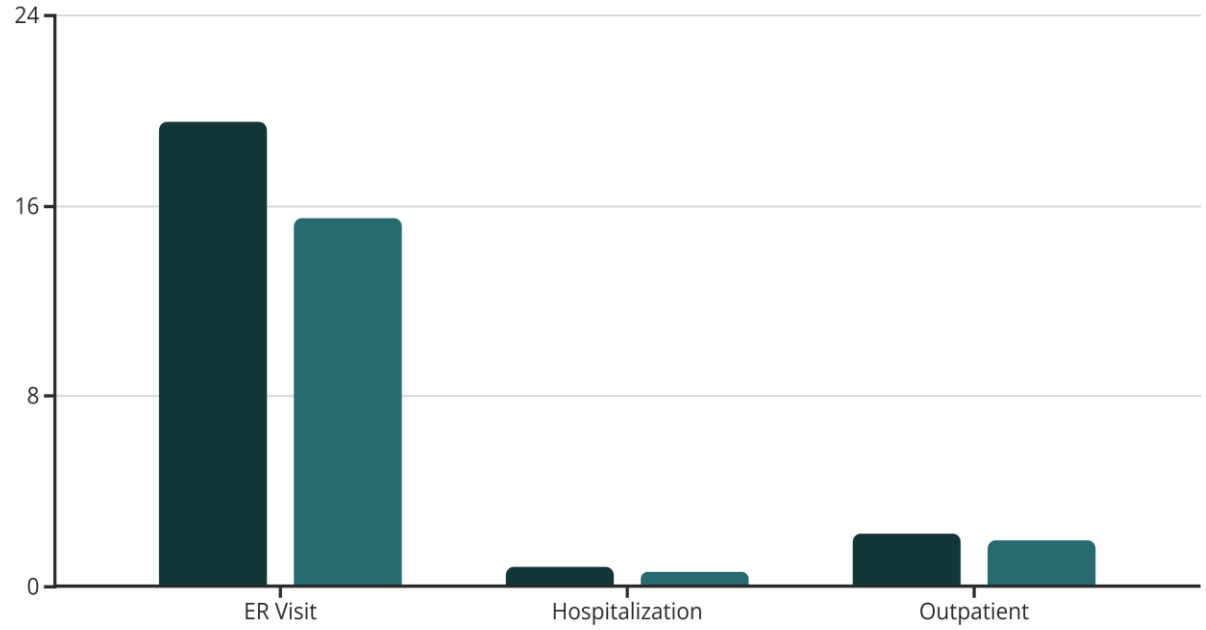
The participant population spanned various geographic and socioeconomic backgrounds, enhancing the system's ability to track program reach and outcomes.

Impact on Key Outcomes

General Health



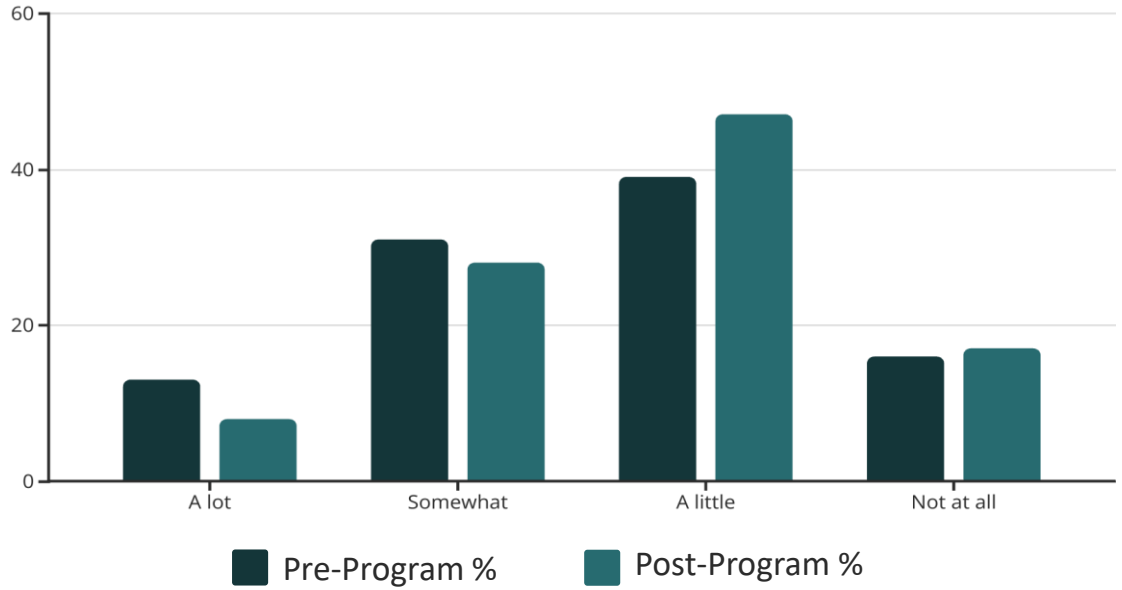
Healthcare Utilization



Participants showed improved self-rated health after completing fall prevention programs. The proportion rating their health as "Excellent" increased from 9% to 12%, while those reporting "Fair" health declined from 22% to 18%.

Impact on Fear of Falling

Self-Reported Fear of Falling Before and After Program



Participants reporting high levels of fear ("A lot") decreased from 13% to 8% after program completion, while those with moderate fear levels also declined.

Impact on Healthcare Utilization

52%

Reduction in Falls

Average number of falls decreased from 0.46 to 0.22 per participant

56%

Fewer Injurious Falls

Rate of injurious falls decreased from 18% to 8% after program participation

18%

Fewer ER Visits

Emergency room visits following falls decreased from 0.5 to 0.41

26%

Fewer Hospitalizations

Fall-related hospitalizations declined from 0.5 to 0.37

Note: Pre-program falls were measured over 3 months, while post-program falls were typically measured over 6 weeks or less

Demographic Factors Affecting Outcomes

Gender Impact

Women reported significantly fewer falls than men after program participation, but also showed higher levels of fear of falling (0.165 higher on scale).

Education Level

Higher education was associated with better general health scores (0.107 increase per education level) and lower loneliness (-0.043 per education level).

Program Delivery

In-person delivery showed stronger benefits than virtual formats. Phone/virtual delivery was associated with slightly lower general health scores (-0.033).

These findings highlight the importance of considering demographic factors when designing and implementing fall prevention programs to maximize effectiveness across populations.

Regression Results: Key Factors

Factor	General Health	Loneliness	Number of Falls	Fear of Falling
Program Participation	+0.096***	-0.026***	-0.193***	-0.122***
Age	+0.001	-0.005***	-0.002*	+0.013***
Female (vs Male)	+0.131***	+0.075***	-0.229***	+0.165***
Education Level	+0.107***	-0.043***	+0.003	+0.020**
Chronic Conditions	-0.117***	+0.084***	+0.059***	+0.090***

*** p<0.001, ** p<0.01, * p<0.05

The table shows regression coefficients from random effects models. Program participation significantly improved all outcomes, while demographic factors had varying effects. For example, women had better general health but higher loneliness and fear of falling compared to men.

Economic Analysis: Program Costs

Program Investment

$45M

Total Funding

Federal grants awarded between 2014-2024

275K

Participants

Total individuals served by fall prevention programs

$163

Cost Per Person

Average program cost per participant

Healthcare Cost Estimates

$25,423

Hospitalization

Average cost per fall-related hospitalization

(range: $9,805-$40,619)

$3,525

ER Visit

Average cost per emergency room visit

(range: $1,485-$6,421)

$15,807

Injurious Fall

Average cost per injurious fall requiring medical attention

Sources: Howland (2015), Carande-Kulis (2015), Spetz (2015), Burns (2016), Albert et al. (2016), Reider et al. (2024)

All costs adjusted to 2024 values using U.S. GDP Price Index

Healthcare Cost Savings

Hospitalization

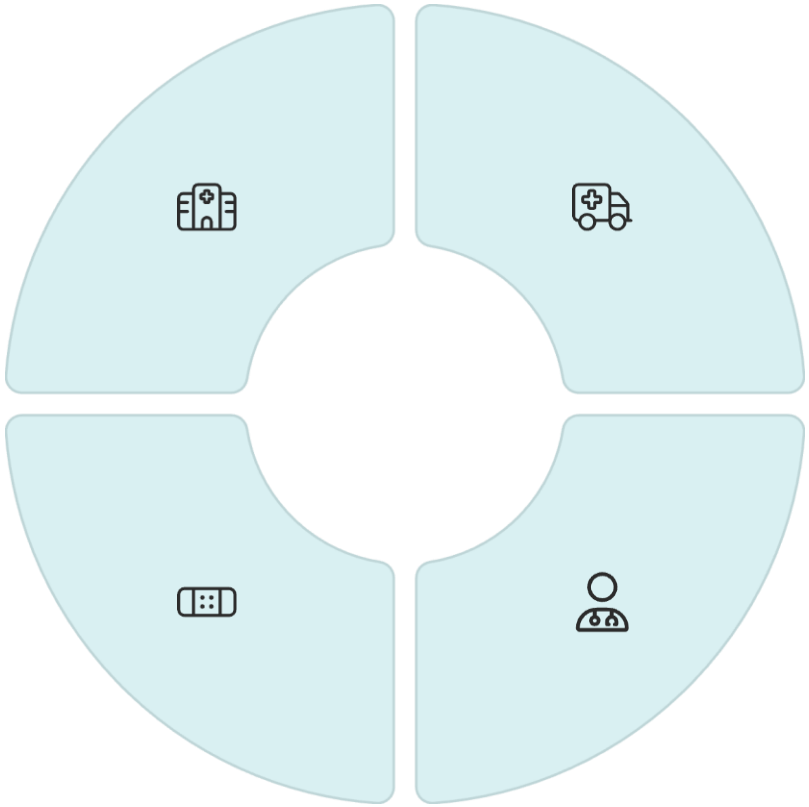
Average cost: $25,423 per incident

Reduction: 0.13 hospitalizations per participant

Injurious Falls

Average cost: $15,807 per incident

Reduction: 0.10 injurious falls per participant



ER Visits

Average cost: $3,525 per visit

Reduction: 0.09 ER visits per participant

Outpatient Care

Average cost: $3,525 per visit

Reduction: 0.08 outpatient visits per participant

Healthcare costs were estimated from peer-reviewed literature and adjusted to 2024 values using the U.S. GDP Price Index.

Return on Investment (ROI)

$8.36

Per dollar invested

Conservative

$22.92

Per dollar invested

Realistic

$38.04

Per dollar invested

Optimistic

Conservative Scenario

$1,527.14 savings per participant

$420.7 million total savings

$375.7 million net savings

$8.36 return per dollar invested

Optimistic Scenario

$6,371.95 savings per participant

$1.76 billion total savings

$1.71 billion net savings

$38.04 return per dollar invested

Total Savings an aggregate of savings across all 275,462 program participants ($3,904.13 mean savings per participant)

Policy Implications

Healthcare Cost Reduction

A $45 million investment in fall prevention programs could save the federal government between $263 million and $1.2 billion in Medicare and Medicaid costs annually.

Program Expansion

Sustain and expand federal funding through ACL Title III-D, CDC Injury Prevention grants, and Medicaid Home and Community-Based Services waivers.

Data-Driven Oversight

Invest in longitudinal tracking through platforms like NCOA's HAPID to measure returns and ensure programs reach underserved communities.

Hybrid Delivery Models

Develop delivery approaches that preserve in-person effectiveness while extending access through virtual options for rural or mobility-limited populations.

Limitations and Future Directions

1 Measurement Timeframe Discrepancy

Pre-program falls were measured over 3 months, while post-program falls were typically measured over 6 weeks or less, potentially underestimating post-program fall events and overstating improvements.

2 Limited Cost Data

Analysis relied on total federal grant awards as a proxy for program costs, lacking detailed program-specific implementation expenses across different sites and delivery models.

3 Missing Data and Self-Reporting

Substantial missing values for key outcomes (ER visits, hospitalizations, income) and reliance on self-reported data subject to recall error and reporting bias.

4 Lack of Claims Data

No access to Medicare/Medicaid claims data that would provide more objective measures of healthcare utilization and costs beyond self-reported outcomes.

Despite these limitations, the findings provide compelling evidence that fall prevention programs deliver significant health improvements and economic returns, making them a valuable investment for public health and healthcare systems.

Conclusion: A Smart Investment in Healthy Aging

Evidence-based fall prevention programs deliver meaningful health improvements and substantial economic returns. Participants experienced significant reductions in:

- Fall incidence (52% reduction)
- Fear of falling
- Emergency healthcare utilization
- Loneliness and isolation

With ROI ranging from $8.36 to $38.04 per dollar spent, these programs represent a fiscally responsible approach to improving the health of older Americans while reducing Medicare and Medicaid expenditures.

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