Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Exercise Program Implementation for Frail Older Adults in Skilled Nursing Facilities: A Cross-Sectional Study

Thomas Bloch

thomas.bloch@med.uvm.edu

University of Vermont

Kelly Melekis

University of Vermont

Mathew Failla

University of Vermont

Reuben Escorpizo

University of Vermont

Research Article

Keywords:

Posted Date: November 4th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11166870/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Background

Frailty is highly prevalent in skilled nursing facilities (SNFs), yet little is known about how physical and occupational therapists implement exercise programs for frail older adults in real-world practice.

Methods

This cross-sectional study examined therapist perceptions, clinical reasoning, exercise modification strategies, and implementation challenges across three SNFs. Using a custom-developed Qualtrics survey, 62 licensed therapists (61.3% PTs; 38.7% OTs) provided quantitative and qualitative data. The FRAIL-NH scale was included to standardize frailty classification.

Results

Therapists primarily conceptualized frailty through mobility dependence, reduced strength, and diminished endurance, with most treating moderately or severely frail residents. Clinical reasoning varied by experience level, with more experienced therapists describing individualized and context-sensitive approaches. Education level was associated with perceived resource adequacy and confidence. Differences between PTs and OTs emerged in frailty identification strategies, though intervention priorities were similar. Common barriers included patient limitations, low motivation, and equipment scarcity.

Conclusions

Exercise implementation for frail SNF residents is complex and varies based on therapist

INTRODUCTION

Frailty is increasingly recognized as a critical clinical condition in aging populations, particularly among older adults residing in long-term care settings such as Skilled Nursing Facilities (SNFs). Defined as a multidimensional syndrome involving decreased physiological reserve and heightened vulnerability to stressors, frailty is associated with functional decline, hospitalizations, falls, and mortality, with prevalence estimates in SNFs ranging from 25% to 75%, especially among adults aged 85 and older.[1] As the U.S. population over age 65 continues to grow,[2] frailty poses rising clinical and economic challenges, contributing an estimated $18,000 in additional annual healthcare expenditures per person.[3]

Frailty in SNFs commonly manifests through mobility impairment, weakness, fatigue, weight loss, cognitive decline, and diminished social participation, often co-occurring with polypharmacy, chronic

disease, and geriatric syndromes. Exercise is among the most evidence-supported interventions for mitigating frailty-related impairments, demonstrating benefits for strength, gait speed, balance, functional independence, and cognitive health.[4] Multicomponent programs—combining resistance, aerobic, balance, and functional training—are particularly effective and generally safe when adapted for frail older adults.[5,6] Despite this evidence, exercise implementation in SNFs remains inconsistent due to variability in staffing, resources, and therapist expertise.[7]

Physical therapists (PTs) and occupational therapists (OTs) play central roles in frailty management, with PTs typically addressing mobility and musculoskeletal function and OTs focusing on activities of daily living (ADLs), cognition, and occupational engagement.[8,9] Their exercise-related decisions are shaped by complex clinical reasoning that integrates medical history, function, resident goals, and environmental constraints. In SNFs, this reasoning is further complicated by fluctuating medical stability, cognitive variability, and constraints on time and staffing.[10]

Although exercise is well supported in research settings, less is known about how these interventions are operationalized in everyday SNF practice.[11] Implementation science suggests that interventions validated in controlled environments often face challenges when translated into long-term care, where productivity pressures, documentation demands, and limited interdisciplinary communication may hinder consistent application. Variability in frailty assessment practices can further fragment service delivery and contribute to inequities in access or treatment intensity.[12]

Frailty assessment tools offer a structured way to identify residents who may benefit from exercise and to guide intervention planning. While tools such as the Clinical Frailty Scale, Frailty Index, and Fried's Phenotype are widely used in research, they are often impractical in SNFs due to time requirements or limited functional relevance.[13] The FRAIL-NH, by contrast, provides a brief, validated, SNF-specific screening tool encompassing fatigue, resistance, ambulation, illness, weight loss, nutrition, and dressing assistance.[14] Despite its suitability for SNF workflows, its integration into routine practice appears limited, and little is known about how therapists use frailty screening to guide exercise design.

Vermont provides a particularly relevant environment in which to examine these issues. As one of the most rapidly aging states—with nearly 20% of residents over age 65—it faces pronounced rural workforce shortages and resource limitations that shape SNF service delivery.[15] At the same time, Vermont's emphasis on person-centered care offers insight into both barriers and innovations in frailty management.

This study aims to examine how PTs and OTs in Vermont SNFs implement exercise programs for frail older adults. Using a custom evidence-based survey administered to therapists in three SNFs in Chittenden County, the study explores how therapists conceptualize frailty, adapt exercise programs for residents with frailty, and navigate institutional supports or limitations. The study also investigates the extent to which frailty assessments—particularly the FRAIL-NH—inform clinical reasoning and exercise modification.

Efforts to scale exercise implementation must consider SNF staffing realities, where PTs and OTs often manage large caseloads and may rely on group interventions that are not always feasible for residents with complex frailty presentations.[16] Therapist training also plays an important role; many report limited formal education on frailty or geriatric complexity, contributing to inconsistent interpretation and application in practice.[17] Interdisciplinary collaboration varies widely, with some therapists fully integrated into care planning and others siloed from ongoing decision-making.[18]

Study Aims

This study aimed to examine how physical therapists (PTs) and occupational therapists (OTs) in skilled nursing facilities (SNFs) implement exercise programs for frail older adults. Specifically, the study aimed to:

(1) describe how therapists conceptualize frailty in clinical practice;

(2) examine how exercise programs are adapted for residents with frailty;

(3) explore therapist clinical reasoning processes guiding exercise prescription and modification; and

(4) identify perceived barriers and supports influencing exercise program implementation in SNFs.

Additionally, the study explored how frailty assessment tools, including the FRAIL-NH, may inform therapist decision-making in routine practice.

METHODS

Study Design

A cross-sectional descriptive survey design was used to examine how physical and occupational therapists implement exercise programs for frail older adults in SNFs. The study characterized exercise program structure (e.g., frequency, delivery mode, targeted outcomes) and explored therapists' clinical reasoning related to frailty assessment, intervention prescription, and program modification. The analytic approach was exploratory and descriptive, prioritizing understanding of therapist perceptions rather than predictive modeling.

Setting

Participants were PTs and OTs from three SNFs in Chittenden County, Vermont—the most populous region in the state. Vermont maintains approximately 37 licensed SNFs, with 6–8 located in this region.[19] Informal workforce estimates suggest 100–125 therapists statewide work in SNFs; therefore, the sample of 62 respondents represents approximately 50–60% of Vermont's SNF therapy workforce

and 40–50% of SNFs in the region. Although all sites were located in Burlington, the area serves as the state's principal medical hub and draws post-acute referrals from rural and urban communities, supporting representativeness of residents and practice patterns. Vermont's uniform SNF regulatory structure further supports generalizability across the state.

Sample Considerations

As this study employed a cross-sectional descriptive design, no formal sample size calculation was conducted. The sample size was determined pragmatically based on therapist availability across participating facilities. The final sample of 62 respondents was considered sufficient to characterize patterns in therapist perceptions, clinical reasoning, and exercise implementation within the study context.

Participants

The study participants were licensed physical therapists and occupational therapists; no older adults or SNF residents were directly enrolled as research participants, and resident age data were not collected. Convenience sampling was used. Eligible participants were licensed PTs or OTs: (1) providing direct care in SNFs and (2) involved in designing or delivering exercise programs for frail residents. Familiarity with the FRAIL-NH was not required for participation, as the scale was embedded within the survey to standardize responses across participants. The scale was embedded within the survey to standardize responses. Invitations were distributed via email through SNF rehabilitation leads (Appendices B–C), with participation implied through survey completion. No identifying information (e.g., facility name, emails, IP addresses) was collected. The University of Vermont Institutional Review Board approved the study (STUDY00003475). Clinical trial number: not applicable.

Survey Instrument

A six-section survey (Supplemental File A), informed by literature on frailty, clinical reasoning, and SNF rehabilitation, included multiple-choice, Likert-type, and open-ended items covering: demographics (age group, discipline, years of experience, education level), perceptions of frailty and typical frailty severity encountered, clinical reasoning guiding exercise selection and modification, resource adequacy and barriers (e.g., time, equipment, staffing), outcome prioritization, including mobility, ADLs, strength, cognition, and patient-reported outcomes, and open-ended insights describing reasoning strategies and effective program components.

The FRAIL-NH scale was embedded within the survey to guide respondents in classifying a representative frail patient and to provide a standardized reference point for subsequent responses. The tool was used for descriptive purposes rather than to evaluate differences in clinical practice based on prior familiarity or use. The FRAIL-NH assesses fatigue, resistance, ambulation, illness burden, weight

loss, nutrition, and dressing dependence and has demonstrated strong reliability and predictive validity in SNFs.[14] Although originally developed for research, therapists recognized its domains due to their alignment with the Minimum Data Set (MDS)[20] and typical interdisciplinary assessment procedures.

Key study concepts were operationalized using survey items rather than predefined scales. Clinical reasoning was assessed through items examining how therapists selected and modified exercise interventions, including triggers for modification, prioritization of functional goals, and use of structured versus adaptive approaches. Differences in clinical reasoning across experience levels were interpreted based on patterns in these responses.

Perceived resource adequacy was measured using Likert-type items evaluating therapist perceptions of available time, equipment, staffing, and organizational support. Confidence was assessed through therapist self-reported comfort in designing and progressing exercise programs for frail residents. These measures were interpreted descriptively to characterize patterns in therapist perceptions rather than as validated constructs.

Data Collection Procedures

The Qualtrics[21] survey link was emailed to therapists through department leads. Participants were instructed to complete the survey independently based on a current frail resident. Data collection spanned five weeks, with two reminder emails sent at weeks two and four. All responses were electronic and anonymous. The recruitment flow is shown below:



Responded after Initial Email (n = 38)



Responded after Reminder 1 (n = 15)



Responded after Reminder 2 (n = 9)

Final Completed Surveys (n = 62)

Figure 1 Survey recruitment and response flow across initial invitation and two reminder waves.

Data Analysis

Quantitative data were analyzed using Qualtrics and SPSS v29. Frequencies and percentages summarized categorical variables (e.g., age, profession, years of experience, frailty classification, resource adequacy, barriers). Chi-square tests were used for subgroup comparisons, including PT vs. OT, age < 40 vs. ≥40 years, and < 10 vs. ≥10 years of experience. The age-40 and 10-year thresholds reflected typical career transition points in PT workforce data.[22]

Regression modeling was not conducted because (1) the survey largely comprised categorical variables, (2) the study lacked a defined dependent variable for prediction, and (3) the purpose was descriptive rather than inferential. Instead, Chi-square tests and stratified analyses aligned with the study's emphasis on identifying patterns in reasoning and implementation.

Qualitative responses were analyzed using NVivo 12.[23] An inductive content analysis approach was used (Elo & Kyngäs, 2008)[24], beginning with open coding, grouping codes into categories, and abstracting themes related to clinical reasoning, exercise planning, perceived challenges, and facilitators.

RESULTS

Participant Characteristics

Sixty-two therapists completed the survey, representing both physical therapists (61.3%) and occupational therapists (38.7%). Respondents were broadly distributed across age and experience levels, with most holding doctoral degrees (58.1%) and nearly half possessing more than fifteen years of experience. Full demographic details appear in Table 2.

Table 2
Participant Characteristics (total n = 62)

Category	n	%
Age Group		
18–29 years	16	25.8
30–39 years	15	24.2
40–49 years	11	17.7
50–59 years	12	19.4
60 + years	8	12.9
Gender		
Female	37	59.7
Male	24	38.7
Other/Prefer not to say	1	1.6
Profession		
Physical Therapist	38	61.3
Occupational Therapist	24	38.7
Education Level		
Doctorate	36	58.1
Master's Degree	19	30.6
Bachelor's Degree	7	11.3
Years of Experience		
0–5 years	17	27.4
6–10 years	9	14.5
11–15 years	11	17.7
16–20 years	16	25.8
21 + years	9	14.5

Frailty Identification and Patient Profiles

Therapists most commonly defined frailty using indicators such as reduced physical strength, fatigue, and increased vulnerability. FRAIL-NH scoring for a representative patient showed high endorsement of ambulation dependence (82.3%), fatigue (75.8%), difficulty with resistance tasks (67.7%), and dressing

dependence (61.3%). Weight loss and illness burden were less frequently selected, reflecting their relevance outside the therapist's direct scope. These findings indicate that therapists primarily conceptualize frailty through mobility and endurance impairments, aligning with the functional emphasis of SNF rehabilitation.

Exercise Modification and Clinical Reasoning

Therapists typically modified programs following functional decline, changes in patient status, safety concerns, or interdisciplinary consultation. The distribution of modification triggers is shown in Table 3.

Table 3
Decision Criteria for Modifying Exercise Programs (total n = 62)

Trigger	Percentage of Respondents (%)
Following a decline in function	26%
Based on changes in patient status	23%
Upon observing safety concerns	22%
After team consultation	22%

Experience level significantly influenced modification reasoning ($p < 0.05$). Early-career therapists relied more on structured protocols or patient-reported changes, whereas therapists with ten or more years of experience described reasoning guided by pattern recognition and interdisciplinary collaboration. These detailed patterns are presented in Table 1.

Table 1
Clinical Reasoning by Years of Experience (total n = 62)

Reasoning Factor	0–5 yrs	6–10 yrs	11–15 yrs	16–20 yrs	21 + yrs
Address Functional Deficits	53%	57%	63%	68%	78%
Align with Preferences	53%	100%	85%	38%	54%
Improve Strength	60%	58%	72%	59%	57%
Use Protocols	65%	67%	66%	63%	60%

Table 4
A frequency breakdown of coded qualitative themes.
(total n = 62)

Program Feature	# of Mentions
Function-Based Exercises	6
Progressive Strength Training	5
Balance & Fall Prevention	5
Patient-Centered Customization	3
Multi-Component Programs	4
Dual-Task Training	2
Caregiver Involvement	1
Low-Influence Modalities	3
Flexibility in Programming	2
Endurance & Resistance	3
Balance-Oriented Techniques	2
Task-Specific Rehab	2

Barriers to Implementation

Therapists identified several challenges to program delivery, including physical limitations of patients, low motivation, and equipment shortages. Education level influenced equipment-related perceptions, with therapists holding bachelor's degrees significantly more likely to report equipment limitations than those with master's or doctoral degrees ($p = 0.030$).

No significant relationships were found between resource adequacy and therapist discipline, experience, or education overall.

Rationale for Exercise Selection and Perceived Success

Therapists emphasized addressing functional deficits, improving strength and endurance, and aligning interventions with patient preferences. Success was commonly evaluated through mobility improvements, functional independence, strength gains, and patient-reported quality of life. Frailty level did not meaningfully influence perceived success, suggesting that benefits were observed across severity levels.

Subgroup Differences in Implementation Patterns

Notable descriptive trends emerged across therapist background variables. Therapists under age forty referenced evidence-based progression models more frequently, whereas those over forty emphasized

individualized adaptation. More experienced therapists recognized system-level barriers (e.g., staffing, administrative constraints), while less experienced therapists reported uncertainty or reduced confidence. Doctoral-level therapists emphasized cognitive outcomes and long-term well-being, while those with master's or bachelor's degrees prioritized mobility and ADLs. Although not all differences reached statistical significance, these subgroup variations contextualize broader patterns in clinical reasoning and implementation.

Qualitative Findings

Qualitative responses provided additional context to the quantitative findings, illustrating how therapists approach exercise implementation for frail residents in practice. Several recurring themes emerged, including function-based interventions, progressive strengthening, balance training, individualized program design, and flexible implementation strategies.

Therapists consistently emphasized the importance of functional, task-oriented exercises that translate to daily activities. One participant noted, "Functional mobility exercises improve real-life capabilities and promote independence in ADLs," reflecting a broader focus on maintaining independence and real-world performance.

Progressive strengthening was also frequently described, with therapists highlighting the need to balance challenge with safety. As one participant explained, "I use a stepwise progression approach, increasing resistance based on tolerance and observed gains." Similarly, balance training and fall prevention were commonly incorporated into programming, with one participant stating, "Balance exercises are crucial for reducing fall risk and maintaining postural control."

Individualization of care was a central theme across responses. Therapists described adapting programs based on patient goals, tolerance, and cognitive status. For example, one participant noted, "I focus on a patient-centered approach, incorporating their goals and comfort levels into every session."

Many therapists also described using multicomponent interventions that integrate strength, endurance, balance, and cognitive elements. One participant stated, "Multi-component exercises address both physical and cognitive decline simultaneously." A smaller number of participants specifically referenced dual-task training, with one participant explaining, "I use dual-task exercises to improve both cognitive and motor skills, which is especially useful in mild cognitive impairment."

When asked to provide broader insights into implementation, therapists described several pragmatic strategies for working with frail residents. These responses emphasized flexibility in programming, low-impact approaches, and the integration of multiple exercise components to accommodate variability in patient presentation.

Therapists frequently highlighted the importance of using low-impact and adaptable modalities, particularly for residents with advanced frailty or joint limitations. One participant noted, "Aquatic therapy provides low-impact resistance and is excellent for patients with joint issues or advanced frailty."

Flexibility in program design was also emphasized, with therapists describing the need to adjust interventions based on day-to-day changes in energy levels, cognition, and engagement. In addition, many participants recommended combining endurance and resistance training to support functional independence. One participant explained, “A combination of endurance and strength training is essential for maintaining independence.”

Balance-focused strategies were also commonly described, including approaches such as proprioceptive training and Tai Chi to address fall risk and improve movement confidence. Therapists further emphasized the importance of task-specific rehabilitation, structuring interventions around meaningful activities and functional deficits relevant to each resident’s daily life. Some participants also noted the role of caregiver involvement in supporting consistency and carryover outside of therapy sessions, though this was less frequently reported.

Overall, qualitative findings reinforce that exercise implementation in SNFs is individualized and multifactorial, requiring therapists to integrate functional goals, patient-specific factors, and ongoing clinical judgment in response to variability in resident presentation.

DISCUSSION

This study examined how physical and occupational therapists implement exercise programs for frail older adults in VT SNFs, highlighting the clinical reasoning processes, barriers, and adaptive strategies that shape rehabilitation delivery in long-term care. Although hypotheses guided subgroup comparisons, the study’s primary aim was descriptive—exploring variation in practice rather than identifying predictors of specific outcomes. This orientation aligns with the need to understand real-world decision-making in environments characterized by fluctuating patient needs, institutional constraints, and interdisciplinary demands. Across quantitative and qualitative data, three central insights emerged: (1) Clinical reasoning appeared to be flexible and individualized across respondents, reflecting the need to adapt to variability in patient presentation and clinical context; (2) interdisciplinary communication enhances the consistency and safety of care; and (3) therapist education and training influence confidence and strategy selection when treating frailty.

Therapists frequently described adapting interventions “on the fly” in response to daily changes in strength, cognition, fatigue, and engagement. Interdisciplinary collaboration—though inconsistently available—was noted as critical for supporting clinical decisions and maintaining continuity of care. Some therapists described uncertainty or variability in approach, which may suggest areas where additional training or support could be beneficial.

Therapists’ conceptualizations of frailty were consistent with established literature defining it as a multidimensional syndrome characterized by diminished physiological reserve and vulnerability to stressors.[25] Reported caseloads aligned with national trends indicating high prevalence of moderate to severe frailty in institutionalized populations.[26] Treatment examples, such as adjusting exercise intensity

based on fatigue or using cognitive prompts during mobility tasks, illustrate the dynamic, context-sensitive adaptations required in SNF rehabilitation.

Patterns in decision-making reflected experience-related differences similar to prior work demonstrating that clinical reasoning in geriatrics evolves from protocol-driven approaches toward more intuitive, pattern-based judgment.[27] In this study, therapists with more than ten years of experience were significantly more likely to incorporate interdisciplinary input and clinical intuition into their decision-making, whereas less experienced therapists relied more on structured progressions or explicit safety thresholds.

Despite strong evidence supporting exercise as an effective intervention for frailty,[28] therapists reported substantial implementation barriers, including resident physical limitations, low motivation, and resource constraints. Such challenges are consistent with earlier studies in SNF settings and suggest systemic factors often outweigh individual provider characteristics in shaping care quality.[29] No association was found between perceived resource adequacy and therapist education or experience, reinforcing the influence of institutional and structural conditions.

Therapists prioritized functional gains, strength, endurance, and patient preferences when selecting exercises—principles rooted in geriatric rehabilitation guidelines and supportive of whole-person care.[30] Their use of mobility, functional independence, and quality-of-life outcomes reflects a growing emphasis on broader measures of well-being as markers of rehabilitation success.[31]

Integrating Quantitative and Qualitative Insights

While this study identified notable descriptive associations between therapist characteristics and clinical reasoning—such as differences by experience level, discipline, and academic training—predictive modeling was not conducted due to the study's descriptive design and the absence of a defined dependent outcome appropriate for regression. Future research could build on these exploratory findings by applying logistic or multinomial regression to test observed subgroup patterns more formally and clarify the strength of these associations.

Qualitative and quantitative findings showed strong convergence. Both data types highlighted the centrality of functional mobility, patient-centered goals, and progressive adaptation. Therapists who endorsed progression-based reasoning in survey responses also described adaptive strategies in narrative comments. Divergence occurred primarily in perceived barriers: quantitative findings emphasized time and staffing, while qualitative data added dimensions such as emotional fatigue and organizational culture. Such triangulation enriches understanding of SNF rehabilitation and aligns with prior mixed-methods evaluations of geriatric care.[32]

Clinical Implications

These findings may support increased awareness of variability in how frailty is conceptualized and addressed in SNF rehabilitation. The results highlight potential areas for reflection in clinical practice, including the role of interdisciplinary collaboration, adaptation to patient variability, and consideration of functional outcomes. Given the descriptive nature of the study, these findings should be interpreted as hypothesis-generating and may inform future research exploring strategies to support exercise implementation in frail populations.

Results also highlight the value of mentorship and structured interdisciplinary learning. Early-career therapists frequently reported uncertainty or hesitancy when advancing exercise intensity. Embedding reflective supervision, peer consultation models, or structured case reviews into SNF workflows may strengthen clinical reasoning and enhance intervention consistency.[30]

Policy Implications

The study identifies organizational and systemic barriers that limit the application of evidence-based rehabilitation practices. Productivity expectations, staffing shortages, and the absence of standardized frailty tools frequently constrained therapists' ability to implement individualized or progressive exercise programs. Addressing these challenges requires administrative and policy-level solutions, including: integrating frailty screening (e.g., FRAIL-NH) into admission assessments; supporting interdisciplinary care planning structures; improving staffing ratios to reduce productivity pressure; aligning reimbursement models with value-based metrics that prioritize function, safety, and quality of life. Such recommendations reflect international calls for health systems to strengthen infrastructure and workforce capacity for frailty-responsive care.[33]

Strengths and Limitations

A key strength of this study is its mixed-methods design, which provides both descriptive breadth and narrative depth regarding therapist reasoning and implementation patterns. By foregrounding therapist perspectives, it adds insight to a relatively underexplored area of frailty research.

Limitations include its geographic scope (three SNFs in VT), limiting broader generalizability; its cross-sectional design, which precludes causal inference; and reliance on self-report data, which may be susceptible to bias. The study also did not include resident or caregiver perspectives—an important area for future research. Additionally, although patterns emerged between therapist characteristics and decision-making, regression analyses were not conducted due to the descriptive nature of the dataset. Future studies with larger samples and defined outcomes may benefit from inferential modeling to validate these trends.

CONCLUSION

This study provides a therapist-centered perspective on how exercise programs for frail older adults are implemented in SNFs under real-world constraints. It highlights the interplay between clinical reasoning,

institutional barriers, and patient-centered values, offering a practical foundation for future implementation research, therapist training, and policy reform in geriatric rehabilitation.

Declarations

ACKNOWLEDGMENTS

Conflicts of Interest and Source of Funding

None declared.

Prior Publication

This work has not been previously published.

Funding Declaration

No funding.

Ethics approval and consent to participate

The study was approved by the University of Vermont Institutional Review Board (STUDY00003475). The Institutional Review Board approved an implied consent process for this anonymous survey. Participation was voluntary, and participants indicated their consent to participate by completing and submitting the survey. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki and all applicable institutional guidelines and regulations.

Consent for publication

Not applicable.

Availability of data and materials

The datasets generated and analyzed during the current study are not publicly available.

References

1. Kojima G. Prevalence of Frailty in Nursing Homes: A Systematic Review and Meta-Analysis. J Am Med Dir Assoc. 2015;16:940–5.
2. Shreya D, Fish PN, Du D. Navigating the Future of Elderly Healthcare: A Comprehensive Analysis of Aging Populations and Mortality Trends Using National Inpatient Sample (NIS) Data (2010–2024). *Cureus* 2025, 10.7759/cureus.80442
3. A AA, Aljunid SM, Ismail A, et al. THE ECONOMIC BURDEN OF FRAILTY AMONG ELDERLY PEOPLE: A REVIEW OF THE CURRENT LITERATURE. Malays J Public Health Med. 2020;20:224–32.

4. Farup PG, Hestad K, Engedal K. Personalised Prevention of Falls in Persons with Dementia—A Registry-Based Study. Geriatrics. 2025;10:106.
5. Monteiro FC, Sampaio RAC, Bizzozero-Peroni B, et al. Physical Activity and Older Population: Are the Physical Activity Guidelines Adequate for Low- and Middle-Income Countries? J Phys Act Health. 2025;1:1–2.
6. Mas-Bargues C, Viña J, Borrás C, Editorial. Frailty- and age-associated diseases: possibilities for intervention. Front Aging. 2024;5. 10.3389/fragi.2024.1522451.
7. Tijsen LMJ, Derksen EWC, Achterberg WP, et al. A Qualitative Study Exploring Professional Perspectives of a Challenging Rehabilitation Environment for Geriatric Rehabilitation. J Clin Med. 2023;12:1231.
8. Occupational. Therapy Scope of Practice | AOTA.
9. Scope. of Practice. *APTA*.
10. Cohen ET, Karpatkin HI, DiCarrado S, et al. A clinical reasoning framework for fatigue for neurologic physical therapy. Phys Ther Rev. 2020;25:271–82.
11. Di Lorito C, Long A, Byrne A, et al. Exercise interventions for older adults: A systematic review of meta-analyses. J Sport Health Sci. 2021;10:29–47.
12. Albarqi MN. Assessing the Influence of Multidisciplinary Collaboration on Quality of Life in Older Patients Receiving Primary Care: Cross Sectional Study. Healthcare. 2024;12:1258.
13. Hothi H, Paolone AR, Pezeshki M, et al. The Implementation of Frailty Assessment Tools in the Acute Care Setting: A Scoping Review. J Am Geriatr Soc. 2025;73:2571–8.
14. Liau SJ, Lalic S, Visvanathan R, et al. The FRAIL-NH Scale: Systematic Review of the Use, Validity and Adaptations for Frailty Screening in Nursing Homes. J Nutr Health Aging. 2021;25:1205–16.
15. Age Strong Vermont. Our Roadmap for an Age-friendly State | Vermont Department of Health.
16. Lorenz RA, Gooneratne N, Cole CS, et al. Exercise and Social Activity Improve Everyday Function in Long-Term Care Residents. Am J Geriatr Psychiatry. 2012;20:468–76.
17. Ludlow K, Martin S, Logan B, et al. Focus on Frailty': Co-Designing Digital Frailty Education with Healthcare Students. J Multidiscip Healthc. 2025;18:2305–17.
18. Committee on the Quality of Care in Nursing Homes, Board on Health Care Services, Health. In: Division M, et al. editors. The National Imperative to Improve Nursing Home Quality: Honoring Our Commitment to Residents, Families, and Staff. Washington, D.C.: National Academies; 2022. p. 26526.
19. Facilities That Serve Chittenden County. | Division of Licensing and Protection.
20. SEER-Medicare. Minimum Data Set (MDS) - Nursing Home Assessment.
21. Qualtrics XM. The Leading Experience Management Software - Qualtrics.
22. A Physical Therapy Profile. Demographics of the Profession, 2021–2022 A Report From the American Physical Therapy Association.
23. NVivo. Leading Qualitative Data Analysis Software. *Lumivero*.

24. Elo S, Kyngäs H. The qualitative content analysis process. J Adv Nurs. 2008;62:107–15.
25. Doody P, Lord JM, Greig CA, et al. Frailty: Pathophysiology, Theoretical and Operational Definition(s), Influence, Prevalence, Management and Prevention, in an Increasingly Economically Developed and Ageing World. Gerontology. 2023;69:927–45.
26. Liu J, Zhu Y, Tan JK, et al. Factors Associated with Frailty in Older Adults in Community and Nursing Home Settings: A Systematic Review with a Meta-Analysis. J Clin Med. 2024;13:2382.
27. Gamborg ML, Mehlsen M, Paltved C, et al. Conceptualizations of clinical decision-making: a scoping review in geriatric emergency medicine. BMC Emerg Med. 2020;20:73.
28. Caicedo-Pareja M, Espinosa D, Jaramillo-Losada J, et al. Physical Exercise Intervention Characteristics and Outcomes in Frail and Pre-Frail Older Adults. Geriatrics. 2024;9:163.
29. Moore L, Britten N, Lydahl D, et al. Barriers and facilitators to the implementation of person-centred care in different healthcare contexts. Scand J Caring Sci. 2017;31:662–73.
30. Criss MG, Wingood M, Staples WH, et al. APTA Geriatrics' Guiding Principles for Best Practices in Geriatric Physical Therapy: An Executive Summary. J Geriatr Phys Ther. 2022;45:70–5.
31. Redefining Aging. A Call to Action for Society to Address a Demographic Shift in Health Care - NAM.
32. Resnick B, Petzer-Aboff I, Galik E, et al. Barriers and benefits to implementing a restorative care intervention in nursing homes. J Am Med Dir Assoc. 2008;9:102–8.
33. Morley JE, Vellas B, van Kan GA, et al. Frailty Consensus: A Call to Action. J Am Med Dir Assoc. 2013;14:392–7.

Figures

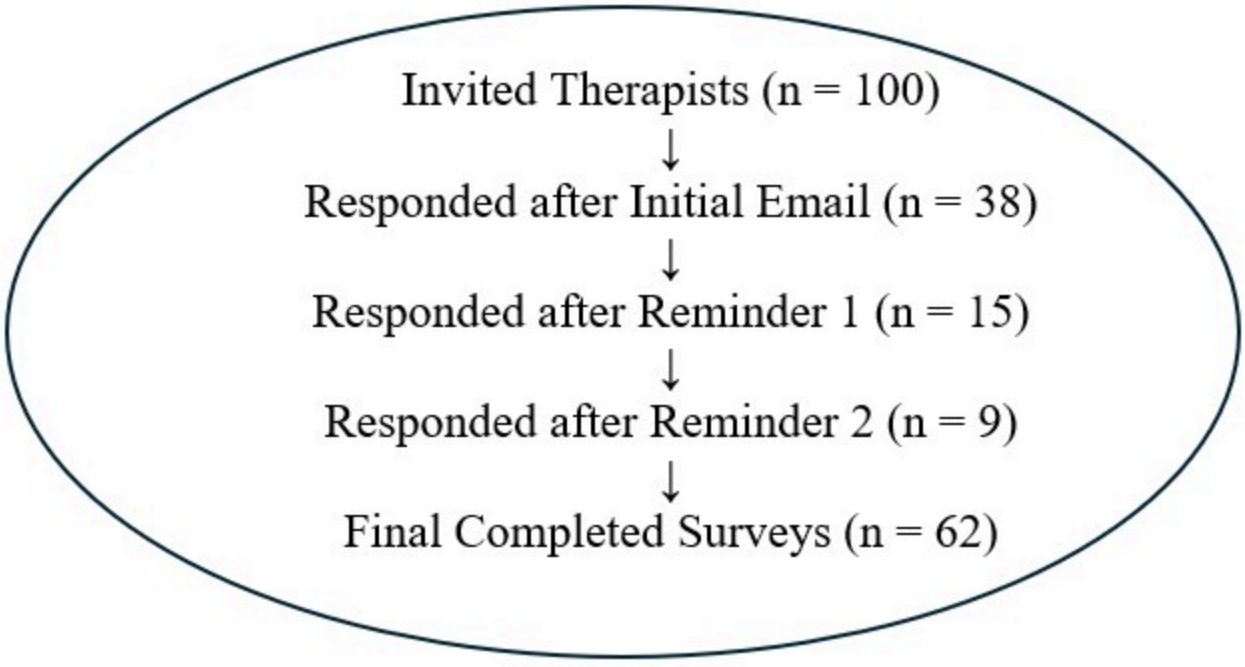


Figure 1

Survey recruitment and response flow across initial invitation and two reminder waves.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- CrossSectionalManuscriptSTROBEChecklist.docx
- CrossSectionalManuscriptSUPPLEMENTARYFILE.docx