Wellness In Motion: A Quality Improvement Initiative to Support Resident Mobility and Reduce Falls.

San N. Pham

University of New Hampshire, Durham, san.pham@unh.edu

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Wellness In Motion: A Quality Improvement Initiative to Support Resident Mobility and Reduce Falls.

San Pham

Department of Nursing, University of New Hampshire

Faculty Mentor: Pamela Kallmerten PhD, DNP, RN, CNL
Practice Mentor: Sharon Neilson MSN, RN
Date of Submission: 7/31/2024
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Abstract

**Background:** Falls are a significant concern in community living centers for older adult veterans. Promoting physical activity and resident engagement is crucial for reducing fall risk among this population.

**Local Problem:** A specific microsystem within this setting has a fall rate of 3 falls per month. This discrepancy underscores the need for targeted interventions to effectively address this issue.

**Methods:** This study measured key metrics related to falls and resident engagement in mobility programs both before and after the implementation of an exercise program within the microsystem.

**Intervention:** The "GIMME 10" exercise program, grounded in evidence-based practices and emphasizing resident-centric care and resource efficiency, was introduced to enhance resident engagement, promote physical activity, and potentially reduce fall rates.

**Results:** Continuous monitoring and feedback mechanisms have unveiled significant success in the program, exceeding initial participation goals and demonstrating promising trends in reducing fall rates. Comparisons with existing literature further validate the program's effectiveness in enhancing mobility and decreasing falls among older adults, particularly with the current fall rate of less than 3 falls per month.

**Conclusions:** Acknowledging limitations and ongoing efforts to address them, the quality improvement project highlights the program's strengths and measurable outcomes, positioning it as a valuable model for enhancing resident safety and well-being in similar healthcare settings.

**Keywords:** Fall Risk, older adult, mobility, exercise program.
Introduction

Healthcare systems continuously strive to improve various aspects of patient care, encompassing quality, safety, effectiveness, patient-centeredness, timeliness, cost, efficiency, and equity. The initiative was aimed at enhancing healthcare delivery within a long-term care setting by encouraging resident mobility to reduce fall risk.

Problem Description

Falls among elderly residents in long-term care facilities represent a significant public health concern, resulting in serious injuries and diminished quality of life. At the facility's Community Living Center, the rate of falls, currently at 40%, is slightly below the national average of 40.7%. Despite being below the national average, any fall rate over 75% would be considered critical, indicating the urgent need for proactive interventions to improve fall prevention and promote resident safety and well-being.

Nature of the Problem

Falls among elderly residents in long-term care settings are a complex and multifactorial issue. These incidents are often linked to a combination of age-related declines in physical function, mobility impairments, cognitive deficits, medication side effects, and environmental hazards (Vaishya, 2020). Falls can lead to a range of outcomes, from minor injuries like bruises and abrasions to severe consequences such as fractures, head injuries, and a reduction in functional independence (Abou, 2022). Beyond the physical risks, falls also contribute to significant psychological distress, including fear of falling and social isolation among residents (Li, 2023). Specifically, the rolling average for falls with major injury at the CLC is 9.09%,
significantly higher than the national average of 2.67% (VA CLC Report, 2023). This trend underscores the urgent need for proactive interventions to improve fall prevention strategies and promote resident safety and well-being. The increasing rates of falls with major injury at the Community Living Center highlight a critical issue affecting resident safety, quality of care, and overall healthcare resource utilization.

**Significance of the Problem**

The rising incidence of falls with major injuries at the Community Living Center has profound implications for the well-being of residents and the overall functioning of the facility. These falls compromise physical health and emotional stability, leading to increased healthcare costs, hospitalizations, and long-term care needs, as noted in The High Cost of Falls in Long Term Care (QSource, 2024). The repercussions extend beyond individual residents, impacting the facility's reputation, staff morale, family satisfaction, and organizational performance indicators. Addressing this problem through evidence-based fall prevention strategies, such as incorporating daily physical exercise and walking into residents' Activities of Daily Living (ADLs), is essential. Engaging nursing assistants and registered nurses in encouraging physical activity can significantly promote resident safety and well-being. To explore interventions to reduce fall risk, a review of the literature was conducted to answer the research question: In elderly residential areas such as the CLC, how does integrating physical exercise into the daily routine impact fall incidence? Proactive intervention is crucial to enhance resident safety, improve care quality, and mitigate the adverse effects of falls in long-term care settings.
Available Knowledge

Falls among elderly residents in long-term care settings are multifactorial, linked to declines in physical function, cognitive deficits, medication side effects, and environmental hazards. Studies show that age-related declines in muscle strength, balance, and coordination significantly increase fall risks (Vaishya, 2020). Medication side effects, particularly from sedatives and antihypertensives, further contribute to these risks (Abou, 2022). Environmental factors like poor lighting and cluttered walkways also play a critical role in falls. Psychological impacts, including fear of falling and social isolation, exacerbate physical decline and increase fall risks (Li, 2023). Research supports the effectiveness of exercise programs in improving strength and balance, thereby reducing fall rates. Regular medication reviews are essential to mitigate risks associated with polypharmacy. Interdisciplinary approaches, involving healthcare providers, physical therapists, and family members, create comprehensive fall prevention strategies. Training staff on fall prevention measures and encouraging resident physical activity are crucial for enhancing safety and reducing falls. Despite these efforts, ongoing challenges highlight the need for innovative strategies to further mitigate fall risks and improve outcomes.

Search Methods

Two primary databases, Cumulative Index to Nursing and Allied Health Literature and PubMed, were systematically searched using a combination of keywords and Boolean operators. The key terms utilized in the search included "fall prevention OR fall intervention," "elderly OR geriatric population," and "physical exercise OR mobility." These keywords were selected to ensure a comprehensive search capturing relevant literature on the topic. Limits were applied to the search to include articles published within the last 10 years, written in English, and available as peer-reviewed publications. This timeframe ensured that the review reflected current evidence
and excluded outdated studies that might not align with contemporary practices in fall prevention.

Following the initial search, duplicates were removed, resulting in a total of 113 unique records. These records underwent screening based on predetermined inclusion and exclusion criteria. Inclusion criteria encompassed studies involving elderly residents aged 65 and above living in long-term care facilities, focusing on fall prevention interventions that integrated physical exercise into ADLs. Exclusion criteria included articles in languages other than English, studies with a low level of evidence, those involving different patient populations or care settings, and those unrelated to the topic of interest. After screening, 195 full-text articles were assessed for eligibility based on the inclusion and exclusion criteria. From this pool, ten studies met the criteria for quantitative synthesis (meta-analysis), while none were deemed suitable for qualitative synthesis. Reasons for exclusion of full-text articles included being in languages other than English, possessing a low level of evidence, involving different patient populations or care settings, or being unrelated to the topic under investigation.

**Critical Appraisal of Study 1**

The systematic review and meta-analysis conducted by Schoberer and Breimaier (2019) on exercise interventions for falls prevention in long-term care facilities provides valuable insights into the effectiveness of such interventions. The authors conducted a thorough literature search using multiple databases and sources, ensuring a broad range of studies were included. By pooling data from multiple studies, the authors were able to provide quantitative estimates of the effectiveness of exercise interventions, enhancing the robustness of their findings via the meta-analysis technique. Grading of Recommendations Assessment, Development, and Evaluation can be used to assess the quality of evidence adds credibility to the study's conclusions, providing a
systematic method for evaluating the certainty of the findings in the meta-analysis technique. The inclusion criteria were well-defined, focusing on randomized controlled trials (RCTs) conducted in institutional long-term care settings, which strengthens the relevance of the findings to this specific context. While the authors appraised the methodological quality of included studies, the presence of bias in individual studies could affect the overall conclusions. Sensitivity analyses were conducted to address this concern, but the impact of bias on the pooled results should be considered. Statistical heterogeneity was assessed, but the presence of heterogeneity among included studies could affect the validity of the pooled estimates. Subgroup analyses based on factors contributing to heterogeneity could enhance the interpretation of results (Schoberer and Breimaier, 2019). The study focused on long-term care settings, which may limit the relevance of findings to other contexts, and applying these results to community-dwelling older adults or other healthcare settings should be done cautiously. Despite efforts to identify all relevant studies, publication bias could still exist, where studies with positive results are more likely to be published.

The study provides evidence-based recommendations for exercise interventions in long-term care facilities, highlighting the effectiveness of exercises with a balance component, those performed with technical devices, and those lasting longer than six months. The findings underscore the importance of tailoring exercise interventions to the needs of frail residents, as these individuals may be at increased risk of falls. The results of this study can inform clinical decision-making in long-term care facilities, assisting healthcare professionals in planning and implementing effective fall prevention strategies. This study provides useful information on preventing falls in long-term care settings through exercise interventions. However, it is important to be careful when interpreting the findings because of potential biases and limitations.
Future research should address these issues and explore effective fall prevention strategies for various groups of older adults.

**Critical Appraisal of Study 2**

Another systematic review comprehensively explores various exercise interventions targeting static balance improvement in elderly individuals (Thomas et al., 2019). These interventions cover a wide spectrum, including resistance and aerobic exercise, balance training, T-Bow© and wobble board training, aerobic step, stability ball exercises, adapted physical activity, and Wii Fit Training™. By synthesizing findings from multiple studies, the review offers a robust analysis of the effectiveness of these interventions in enhancing balance performance and reducing fall risk among the elderly.

One of the notable strengths of the review is its comprehensive coverage of diverse exercise interventions, providing a holistic overview of available evidence. Additionally, the synthesis of findings from multiple studies enables a thorough examination of intervention effects. The inclusion of various outcome measures, such as balance assessments and fall rates, improves the understanding of intervention effectiveness. Moreover, the review critically evaluates the strengths and limitations of individual studies, contributing to a detailed interpretation of the evidence. Despite its strengths, the review exhibits certain weaknesses. The heterogeneity of exercise interventions makes direct comparisons between studies challenging and may affect the assessment of their relative effectiveness. Variability in outcome measures across studies limits data pooling and may impact result consistency. Moreover, small sample sizes in some studies raise concerns about the reliability of results. Additionally, inadequate evaluation of participant characteristics, particularly physical and training status, may confound the interpretation of intervention effects (Chen, 2023). The evidence suggests that exercise
interventions, particularly those incorporating a multicomponent approach with aerobic and resistance components, are effective in improving static balance and reducing fall risk among the elderly. Increased muscle strength through resistance training emerges as a key factor associated with balance improvement, underscoring the importance of resistance exercises in fall prevention strategies. Furthermore, specific interventions such as Tai Chi training, T-Bow© and wobble board exercises, and adapted physical activity show promise in enhancing balance and reducing falls, but further research is warranted to confirm their effectiveness.

Critical Appraisal of Study 3

A researched study *Tai Chi for fall prevention and balance improvement in older adults* shows that Tai Chi exercise can help reduce fall risks in the elderly (Chen, 2023). Exercise interventions play a crucial role in preventing falls among the elderly. Multicomponent exercise programs combining aerobic, resistance, and balance training show promise in improving static balance and reducing fall risk. However, further research with larger sample sizes and standardized outcome measures is needed to validate the effectiveness of specific exercise modalities in fall prevention strategies for the elderly population.

Critical Appraisal of Study 4

In a study, *The Importance of Physical Activity Exercise among Older People*, the author shed light on the crucial role of physical activity and exercise in promoting the health and well-being of older adults (Baldelli, 2021). The author explores various facets of physical activity, from its association with chronic disease prevention to its impact on cognitive health and falls prevention. This review critically appraises the strengths, weaknesses, and implications of the study's findings. Langhammer et al (2018) review stands out for its comprehensive coverage of the topic, addressing a wide range of aspects related to physical activity and exercise among

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older adults. By synthesizing existing research, the authors provide a robust evidence-based analysis, enhancing the credibility of their arguments. Moreover, the study offers practical recommendations for healthcare professionals and policymakers, emphasizing the importance of tailored exercise programs and strategies to overcome barriers to participation. Despite its strengths, the review lacks original research findings, limiting its depth of analysis and potential to contribute new insights to the field. Additionally, while the study acknowledges barriers to physical activity participation among older adults, such as comorbidities and environmental factors, it could benefit from a more extensive discussion on overcoming these challenges. Providing practical strategies for addressing barriers would enhance the applicability of the research. Langhammer et al (2018) findings highlight the vital role of physical activity in older adults' health, emphasizing the need for tailored exercise programs targeting balance to reduce falls. Healthcare professionals and policymakers should prioritize initiatives promoting physical activity while addressing barriers like comorbidities and environmental constraints to ensure intervention effectiveness (Langhammer, 2018).

**Critical Appraisal of Study 5**

Carta, M.G., et al. (2021) propose a rigorous study protocol that aims to provide valuable insights into the effects of moderate physical activity on quality of life, cognitive function, immune response, and other key outcomes in older adults. By addressing important research questions and utilizing a comprehensive methodology, this trial has the potential to advance our understanding of active aging and inform future healthcare practices for the elderly population. The study's well-designed approach, including a 12-week intervention and 48-week follow-up, sets a strong foundation for generating meaningful data on the benefits of physical activity for older adults (Carta, M.G., et al., 2021).
**Critical Appraisal of Study 6**

Toots et al. (2019) conducted a cluster-randomized controlled trial to investigate the effects of a high-intensity functional exercise program on falls in older people with dementia living in nursing homes. The study found that the exercise program did not lead to a reduction in fall rates compared to a control group, regardless of sex, dementia type, or balance improvement. However, participants in the exercise group were less likely to sustain moderate/serious fall-related injuries at the 12-month follow-up. The results suggest that in high-risk populations such as older adults with dementia, a multifactorial approach to fall prevention may be necessary. Future studies are warranted to further explore the potential benefits of exercise in preventing fall-related injuries in this vulnerable population (Toots et al., 2019).

**Critical Appraisal of Study 7**

Dautzenberg et al. (2021) conducted a systematic review and network meta-analysis to compare the effectiveness of various types of interventions in preventing falls and fall-related fractures in community-dwelling older adults. The study included a comprehensive search of relevant databases and analyzed data from 192 studies. They found that single interventions such as exercise and quality improvement strategies were associated with reductions in the number of fallers, while multifactorial interventions were linked to a decrease in falls rate but not in the number of fallers. The authors noted some divergent findings from previous research, emphasizing the benefits of exercise in lowering fall-related fractures. The study highlighted the importance of exercise, assistive technology, environmental modifications, and quality improvement strategies in fall prevention interventions, urging for further research to address methodological shortcomings and investigate interventions in multimorbid older populations (Dautzenberg et al., 2021).
**Critical Appraisal of Study 8**

Sipilä et al. (2018) describe the design and methods of the Physical And Swifter Steps for Safe Walking Or Prevention And Strengthening Strategies for Older Adults to Reduce Downs (PASSWORD) study, a randomized controlled trial focusing on the effects of a physical and cognitive training intervention versus physical training alone on mobility and falls among community-dwelling older adults. The study aims to investigate whether a combination of physical and cognitive training has greater effects on walking speed, dual-task cost, fall incidence, and executive functions compared to physical training alone in sedentary or moderately physically active individuals aged 70-85 years. The interventions include supervised training sessions and home exercises, with the physical training intervention based on existing guidelines for older adults. The cognitive training program is adapted from the FINGER study, emphasizing multidomain cognitive training for enhanced neuronal activation and transfer effects. The study design is meticulously planned to capture additive and synergistic effects of physical and cognitive training, providing new insights for promoting safe walking among older adults and potentially influencing both health and socio-economic outcomes (Sipilä et al., 2018).

**Critical Appraisal of Study 9**

Chittrakul et al. (2020) conducted a randomized controlled trial to evaluate the effectiveness of a Multi-System Physical Exercise (MPE) intervention for fall prevention and Health-Related Quality of Life (HRQOL) in pre-frail older adults. The study included 72 participants aged 65 and above, with mild to moderate fall risk scores, who were randomized into Multi-System Physical Exercise (MPE) and control groups. The MPE intervention, focusing on proprioception, muscle strengthening, reaction time, and balance training, showed significant improvements in fall risk, proprioception, muscle strength, reaction time, postural sway, fear of
fall scores, and Health-Related Quality of Life (HRQOL) compared to the control group at 12 and 24 weeks. The study addressed the physiological challenges related to falls in pre-frail older adults and highlighted the importance of exercise interventions in improving physical performance and reducing fall risk. However, limitations such as group-based exercise and center-based program design were acknowledged, suggesting the need for individualized and home-based exercise programs for future studies.

**Critical Appraisal of Study 10**

Alvarez et al. (2015) conducted a cross-sectional study to investigate the association between the Boston FICSIT exercise program and falls incidents in an assisted living population. The study found a protective association between strength training and fall incidents, with participants engaging in more strength training sessions per week having significantly reduced odds of falling. The study provided additional evidence supporting the effectiveness of progressive resistance exercise training in reducing falls among frail older adults residing in assisted living communities. Limitations of the study included the cross-sectional design, lack of control for baseline health status, potential underreporting of fall incidents, and the absence of a comparison group. The findings suggest the need for further research to identify specific exercise programs, particularly focusing on strength training protocols, to effectively reduce falls among older adults in assisted living settings.

**Evidence Synthesis**

Based on the critical appraisal of the ten studies on exercise interventions and falls prevention in older adults, several key implications arise for a quality improvement project. First, integrating multicomponent exercise programs that combine aerobicics, resistance, and balance training is crucial, as highlighted by the meta-analysis (Schoberer and Breimaier, 2019) and
comprehensive review (Thomas et al., 2019). These interventions have shown effectiveness in improving balance and reducing fall risk among elderly populations. Moreover, the project should consider incorporating diverse exercise modalities such as Tai Chi, T-Bow©, and wobble board exercises, as suggested by Thomas et al. (2019). Tailoring exercise programs to the individual needs of older adults, particularly those in long-term care settings, is essential, as emphasized by Schoberer and Breimaier (2019) and Langhammer et al. (2018). Evidence-based clinical decision-making should guide the selection and implementation of these interventions, drawing on the recommendations provided by the reviewed studies. Addressing barriers to participation, such as comorbidities and environmental factors, is critical for the project’s success, echoing the findings of Langhammer et al. (2018).

It is evident that a comprehensive approach to exercise interventions for falls prevention in older adults is essential. The study by Carta et al. (2021) emphasizes the importance of rigorous methodologies and long-term follow-up to yield valuable insights into the effects of physical activity on the quality of life and cognitive function in older adults. Toots et al. (2019) highlight the complex nature of falls prevention in high-risk populations such as older adults with dementia, advocating for multifactorial approaches to reduce fall-related injuries. Similarly, Dautzenberg et al. (2021) underscore the effectiveness of exercise and multifaceted interventions in preventing falls and fractures among community-dwelling older adults, urging further research to address methodological shortcomings and explore interventions for multimorbid populations.

The study by Sipilä et al. (2018) introduces a novel approach by investigating the combined effects of physical and cognitive training on mobility and falls in older adults, emphasizing the need for comprehensive interventions that target both physical and cognitive aspects of aging. In contrast, Chitrtrakul et al. (2020) demonstrate the significance of Multi-
System Physical Exercise (MPE) interventions in improving physical performance and reducing fall risk in pre-frail older adults, highlighting the potential of tailored exercise programs for specific populations. Alvarez et al. (2015) provide further evidence supporting the effectiveness of progressive resistance exercise training in reducing falls among frail older adults in assisted living settings, underscoring the importance of strength training protocols in fall prevention efforts. The integration of findings from these studies underscores the need for personalized, multifaceted exercise interventions that address the unique needs of older adults to enhance overall physical function and reduce fall risk effectively. Finally, the project should be mindful of biases and limitations identified in the literature, such as publication bias and methodological concerns, ensuring robust study design and analysis. Continuous evaluation and potential contributions to further research on effective exercise modalities will be vital for enhancing the project's impact on reducing falls among older adults.

**Rationale**

The project integrated various frameworks, models, concepts, and theories to effectively address fall prevention in the long-term care setting. It utilized a Quality Improvement (QI) model and evidence-based practice (EBP) principles to ensure interventions are grounded in evidence and tailored to the microsystem's unique needs. By incorporating "Gimme 10" exercises into residents' daily routines, informed by behavior change theories and exercise physiology, the aim was to enhance resident safety and well-being. The Quality Improvement (QI) model, specifically the Plan-Do-Study-Act (PDSA) cycle, guided the continuous improvement process. This model involves planning the intervention, implementing it on a small scale, studying the results, and acting based on findings to refine the approach. Evidence-Based Practice (EBP) principles ensure that interventions are based on the best available evidence from
research and clinical expertise. This approach helps in selecting interventions that have been proven effective in similar settings. Behavior change theories, such as the Transtheoretical Model, are utilized to understand and influence resident behavior towards adopting and maintaining the "Gimme 10" exercises. Exercise physiology concepts inform the development of the "Gimme 10" exercises to ensure they are safe, appropriate, and effective in improving strength, balance, and mobility in elderly residents. Assumptions underlying the intervention include the belief that regular physical activity, like the "Gimme 10" exercises, can significantly reduce the risk of falls among residents. By integrating these exercises into daily routines and using behavior change theories, residents are expected to be motivated and encouraged to participate consistently. Involving nursing staff in the implementation and encouragement of the exercises ensures residents receive the necessary support and supervision. The intervention is expected to work due to its evidence-based approach, tailored design for the microsystem, effective behavior change strategies, consistent support and supervision, and the ability to continuously improve based on feedback and outcomes. Overall, the proposal aims to create a comprehensive and effective approach to fall prevention, ultimately enhancing resident safety, well-being, and quality of life.

**Brief Overview of the QI Model**

The Quality Improvement (QI) model for this project utilizes the Plan-Do-Study-Act (PDSA) cycle, a systematic framework designed for continuous improvement. In the planning phase, the project team identified the problem of high fall rates and set two specific aims to reduce the fall rate by 5% and increase resident engagement in "Gimme 10" exercises to 25%. Detailed plans were developed to integrate these exercises into residents' daily routines, including staff training, scheduling, and communication strategies. During the implementation
phase, the team executed the plan, encouraging residents to participate in the exercises while monitoring participation rates and documenting any challenges. The study phase involved analyzing collected data to assess the intervention's effectiveness, reviewing fall incidence rates, exercise participation, and resident feedback. Based on these findings, the team made adjustments and improvements to the intervention as necessary in the act phase, such as modifying schedules or enhancing training. Continuous communication among staff, residents, and stakeholders was essential throughout the QI process to ensure successful implementation, improve resident safety and well-being, and achieve sustainable outcomes.

**Specific Aims**

The purpose of this project and proposal was to implement evidence-based fall prevention strategies, specifically integrating "Gimme 10" exercises into residents' daily routines, with the following goals and expected outcomes. The first goal was to enhance residents’ safety and well-being by reducing the incidence of falls. The expected outcome was a decrease in the average number of falls per month from the initial range of 3 falls per months to fewer than 2 falls per month within two months. The second goal was to improve resident engagement in daily physical exercise. The expected outcome was an increase in residents engaging in "Gimme 10" exercises from 0% to 25% within two months.

**Global Aims**

This project aims to improve fall prevention practices in the daily routines of residents at the long-term care facility. This improvement process begins with integrating "Gimme 10" exercises into residents' daily routines and ends with reducing the incidence of falls and increasing engagement in physical exercise. The benefits of this initiative include enhanced
safety with a reduced risk of injuries, improved physical and mental well-being, increased mobility, strength, and balance among residents, empowerment for residents to take an active role in their health, and a higher quality of life overall. It is imperative to prioritize patient safety, enhance the quality of care, engage staff in collaborative efforts for effective fall prevention, optimize resource utilization, and improve resident outcomes to promote active aging and ensure the well-being of residents.

Methods

Context

The mission of the long-term care facility is to provide exemplary care that honors residents' sacrifices and enhances their quality of life. The environment is designed to foster a culture of compassion, respect, and excellence in care delivery, ensuring residents feel valued and supported throughout their stay. The facility employs an interdisciplinary approach to address residents' medical, psychosocial, emotional, and spiritual needs comprehensively, reflecting a commitment to holistic well-being. The purpose of the microsystem is driven by this mission, aiming to deliver patient-centered services that improve residents' quality of life. The goal is to create an environment where residents receive the highest standard of care, support, and respect. Recognizing the challenges related to aging, disability, and mental health, the facility is dedicated to addressing these needs with sensitivity and expertise. The microsystem strives to provide long-term care and support, adapting to individual healthcare needs to improve overall well-being. Currently, the facility houses 22 residents, all seniors aged 65 to 95 years old. The average length of stay varies based on individual treatment plans, focusing on promoting health and well-being. The facility monitors a 4.55% mortality rate among residents throughout the year, ensuring a stable resident population census. Common diagnoses include chronic
conditions such as Post-Traumatic Stress Disorder (PTSD), hypertension, diabetes, osteoarthritis, heart disease, dementia, depression, anxiety disorders, musculoskeletal disorders, and Chronic Obstructive Pulmonary (COPD). The facility employs a diverse team including physicians, registered nurses (RNs), licensed practical nurses (LPNs), licensed nursing assistants (LNAs), social workers, physical therapists, occupational therapists, dietitians, recreation therapists, and administrative staff. This team collaborates closely to provide holistic care, addressing both medical and psychosocial needs. The facility emphasizes staff satisfaction with an average rating of 90%, despite a decision not to hire new professionals for the next two years. Key processes at the facility include hourly rounding and medication administration, ensuring proactive care and resident safety. Each resident has a personalized care plan outlining treatments, therapies, and services. Skilled healthcare teams provide medical treatments and interventions, including wound care and therapy sessions. Regular coordination with external providers and monitoring of key metrics, such as falls and patient satisfaction, help in enhancing care delivery. Performance indicators like the Quality Measure Report (QMR) and Strategic Analytics for Improvement and Learning (SAIL) allow benchmarking against national standards and identifying areas for improvement. Regular assessment of patient satisfaction and staff retention rates ensures high-quality, patient-centered care. Adherence to care plans and medication administration accuracy are critical for optimizing outcomes and maintaining Medicare standards.

**Cost Benefit Analysis**

The financial implications of implementing the "Gimme 10" exercise program at the long-term care facility are overwhelmingly positive, particularly when considering the costs associated with falls among the elderly. According to the Centers for Disease Control and
Prevention (CDC), in 2020, New Hampshire experienced 25,477 falls resulting in injuries, with total medical costs reaching $186,000,000. This averages out to approximately $7,300 per fall (CDC, 2020). Given the 22 residents at the facility, a single fall per resident could potentially result in medical costs totaling approximately $160,600. By proactively incorporating fall prevention exercises, the quality improvement project is designed to significantly reduce the risk and associated costs of these incidents.

Beyond the direct healthcare savings, the project aims to enhance the safety and well-being of residents, which is anticipated to improve staff morale and increase family satisfaction with the care provided. These improvements contribute to a higher quality of care and reduce overall healthcare resource utilization. The quality improvement project aligns closely with our overarching goal to increase the quality of life and ensure positive outcomes for our residents. Specifically targeting our older senior population, which includes individuals with conditions such as osteoarthritis (OA), musculoskeletal (MS) disorders, and other age-related challenges, the program is designed to benefit those who are most at risk of falls and injuries. By integrating simple, adaptable exercises that cater to their needs, the program not only mitigates health risks but also actively contributes to the residents' physical and psychological well-being. In summary, the cost-benefit analysis of the project highlights it as a cost-effective strategy for enhancing healthcare outcomes and safety at our facility. It offers substantial long-term benefits in both health and economic terms, directly supporting our mission to improve the lives of those we serve. This strategic alignment with our mission underscores the value of the program in fostering an environment where residents feel supported, valued, and actively engaged in their own health management.
Interventions

The "GIMME 10" program at the microsystem is a multifaceted initiative designed to enhance the physical health, overall happiness, and safety of our resident veterans. This program seamlessly integrates into the daily routines of the residents, encouraging them to engage in simple, quick exercises multiple times per day. The goal is to improve mobility, strength, and balance—essential elements in fall prevention. The intervention includes a variety of easy-to-perform exercises such as deep breathing, stretching with TheraBand, squeezing stress balls, and fundamental limb movements like arm stretches, shoulder rolls, and leg lifts. More targeted activities, including toe raises, arm curls, and sit-to-stands, specifically aim to enhance stability and reduce the risk of falls among the residents.

A diverse team of healthcare professionals collaborates to implement the GIMME 10 program. Physical Therapists (PTs) and Occupational Therapists (OTs) play a pivotal role in selecting exercises tailored to each resident's needs. They focus on enhancing balance and strength, monitoring progress, and adjusting the exercise regimen to prevent falls effectively. Nursing staff, including nurses and assistants, support the daily execution of these exercises. They assist residents during activities, monitor for signs of fatigue or discomfort, and ensure safety. Recreational Therapists contribute by making physical activities enjoyable and engaging, which improves mental and emotional well-being and motivates residents to participate consistently. Restorative Care Specialists focus on maintaining and enhancing functional abilities, which is crucial for minimizing the risk of falls. As the project lead, the role of implementation of the GIMME10 program is unique. This position provides me with valuable hands-on experience in fall prevention strategies, allowing application of theoretical knowledge in a practical setting while contributing to the well-being of our residents. My involvement
supports the healthcare team by bringing fresh perspectives and contemporary practices to the initiative, further enhancing the program’s effectiveness.

Collaborative strategies are key to the GIMME 10 program’s success. Regular "Watch List Huddles" kept the team updated on each resident's health and therapy progress, focusing on fall risks and prevention strategies. A weekly exercise participation schedule was posted in living areas helps track participation, with staff providing reminders and marking completions to ensure consistent involvement. By working together through this integrated approach, the team aimed to improve residents’ physical health and significantly reduce fall incidents, thereby enhancing safety and quality of life at the microsystem.

**Study of the Intervention**

The impact of the GIMME 10 program was assessed using both qualitative and quantitative methods. Qualitative data was gathered through resident feedback surveys to gain insights into their experiences and perceptions of the program. Thematic coding identified common themes related to the benefits of the exercises, resident satisfaction, and areas needing improvement. This analysis provided a deeper understanding of how residents perceive the program and its impact on their physical health, happiness, and safety.

Quantitatively, the intervention’s effectiveness was evaluated by tracking key metrics. The primary measure was the fall rate among residents before and after the program’s implementation. This comparison helped to determine if there has been a reduction in falls. Participation rates were monitored to assess engagement levels over time. The interdisciplinary healthcare team at the microsystem will collect and analyze data. PTs, OTs, nursing staff, recreational therapists, and restorative care specialists will monitor progress, adjust exercise
plans, and ensure safety. Regular Watch List Huddles and a weekly exercise schedule will facilitate ongoing communication among team members, ensuring all are informed about each resident’s health status and therapy progress. The study aims to improve resident safety and quality of life by enhancing physical health and reducing fall incidents through the GIMME 10 program. By combining qualitative and quantitative data, the team sought to provide a comprehensive evaluation of the program’s impact and make informed decisions for optimizing fall prevention strategies at the microsystem.

Measures

To evaluate the efficacy of the "GIMME 10" program, we used a comprehensive set of measures: numerical data on falls, observational data on residents' engagement, and qualitative feedback through semi-structured interviews. We compared the number of falls reported monthly from June and July 2024, following the program's implementation, against baseline data from January to May 2024. This quantitative measure verified if the intervention has successfully reduced fall rates among residents. Observations focused on participation frequency, attentiveness to instructions, and enthusiasm during activities. Thus, the implementation fidelity and the resident's adherence and enthusiasm was assessed. Semi-structured interviews with residents conducted by the project leader during exercise sessions, explored their satisfaction with the program, perceived benefits, and any encountered barriers. This method provided detailed insights into residents' experiences and opinions, complementing quantitative measures and offering a holistic view of the program’s impact.

Analysis

To analyze the data, we used qualitative methods tailored to the collected data types, thematic coding was used to analyze interview data, identifying common themes and patterns
related to resident satisfaction, perceived benefits, and challenges. This analysis captured deep insights into residents' personal experiences and the program’s qualitative impact. Although not initially included in our specific aims, considering semi-structured interviews with staff could provide additional insights into the program’s implementation and operational challenges.

**Ethical Considerations**

Ensuring resident autonomy, confidentiality, and minimizing potential risks or discomfort are paramount. Although this Quality Improvement (QI) project is exempt from full Institutional Review Board (IRB) review, it will undergo thorough review to ensure compliance with ethical guidelines and standards of practice. It is crucial to ensure that participation in the QI project is voluntary and not influenced by personal relationships or dynamics. Staff and residents must feel free to decline or withdraw from the project without any repercussions or feeling coerced.

**Results**

The GIMME 10 program was launched with a well-defined set of initial steps and adapted overtime through continuous observations and feedback. The GIMME 10 program's implementation followed a structured timeline, marked by distinct phases that facilitated its adaptation and growth, in Figure 1. In Week 1, the program began with comprehensive staff training to ensure readiness. Week 2 continued with further training and the initial rollout of exercises, alongside efforts to highlight the program's benefits. By Week 3, the focus shifted to monitoring participation and making improvements, including enhancing the exercise checklist for better accessibility. In Week 4, the team collected and analyzed participation data, shared findings with staff and residents, and used the feedback to refine the program.
The graph in *Figure 2* outlines the participation of 18 residents in the “Gimme 10” exercises throughout the week. Each color represents a different day of the week. For instance, Resident 1 participated in exercises on Monday during the week of June 10 to June 16.
In *Figure 3*, participation patterns reveal both increases and decreases in engagement compared to Week 1 in *Figure 2* and Week 2. Resident 17's participation increased from 2 days in Week 1 to 7 days in Week 2. Additionally, a new participant, Resident 19, joined the program in Week 2.

*Figure 3.*

*Week 2-GIMME10 Participation*
In Figure 4, Week 3 participation data shows a significant increase in overall engagement with the “Gimme 10” exercises compared to previous weeks. Week 3 displays a positive trend in exercise engagement, with many residents actively participating most days of the week. This increase in participation suggests that the program is becoming more integrated into the residents’ routines.

Figure 4.

Week 3-GIMME10 Participation

Week 4, as shown in Figure 5, demonstrates sustained high engagement levels among many residents. However, some residents, such as Resident 6, 13, and 14, showed decreased participation compared to previous weeks. This reduction in exercise participation is attributed to their unavailability, as noted on the weekly exercise checklist.
Week 4-GIMME10 Participation

Week 5, shown in Figure 6, reflects a decline in exercise participation for some residents. This decrease is attributed to the absence of full-time staff who went on vacation, leaving per diem staff in charge. The new staff may not have been fully accustomed to the exercise program, leading to a drop in resident participation. Despite this, many residents continued to engage regularly in the program.

Figure 6.

Week 5-GIMME10 Participation
Week 6, as shown in Figure 7, demonstrates varied participation in the “Gimme 10” exercise program. Several residents, including Residents 3, 14, 15, 17 and 18 maintained consistent engagement throughout the week. Residents 7, 11 and 16 also showed strong participation with exercises on multiple days. However, there were noticeable gaps in participation, such as for Residents 1, 2, 4, 6, 13 and 19. This decrease in activity can be attributed to an outbreak of COVID-19, which affected most residents and led to some feeling unwell and fatigued. Additionally, staff members were also impacted by the virus, with some calling out sick, which further influenced participation rates.

Figure 7.

*Week 6-GIMME10 Participation*
Process Measures

The program meticulously tracked several key process measures to ensure its effectiveness and identify areas for improvement. These measures included the number of staff and residents who received training on the GIMME 10 program, the frequency with which exercise sessions were conducted, and the rates of resident participation in these sessions. By monitoring these aspects, the program could ensure that it was being implemented as intended and that participants were actively engaged.

Outcome Measures

To evaluate the success of the GIMME 10 program, several outcome measures were assessed. These included comparing resident fall rates before and after the program’s implementation to determine if there was a reduction in incidents, as illustrated in Figure 8. Additionally, a staff feedback survey was conducted to gauge the program's impact on their workload and morale. Results, shown in Figure 9, revealed that staff found the training comprehensive and felt well-prepared to lead the exercises. They reported that incorporating the exercises into daily routines was relatively easy and observed positive responses from residents. Feedback also identified areas for improvement, ensuring the program’s ongoing effectiveness. Notably, the average fall incidence before the program was 3.25 falls per month, compared to 2.6 falls per month after the program began.

Figure 8

Microsystem Number of Falls
Starting in June 2024, after the GIMME 10 program's implementation, the number of falls fluctuated over the subsequent months. The fall count peaked in January 2024 with 7 incidents but showed a notable decrease in March and April 2024, each recording only 1 fall. Following this period, the number of falls remained relatively stable, suggesting a positive trend towards fewer incidents since the program's start.

**Figure 9**

*Staff Feedback Survey*
Contextual Elements

The effectiveness of the interventions was influenced by several contextual elements. Staff workload and availability played a crucial role in how consistently the program could be implemented. Resident health status and mobility levels affected their ability to participate in the exercises. The existing daily routines and schedules of both staff and residents also impacted how easily the program could be integrated into their daily lives.

Observed Association

Throughout the program, several important associations were observed. Increased resident participation was closely linked with enhanced staff engagement and promotion of the
program. When staff were more involved and actively encouraging, more residents took part in the exercises. Additionally, the consistency of exercise sessions may help with reduced fall rates, highlighting the importance of regular physical activity. Staff feedback indicated that the use of personalized exercise routines and visual aids made the exercises more enjoyable and easier to follow, contributing to the program's success.

**Unintended Consequences**

The GIMME 10 program yielded some unexpected benefits. Increased social interaction among residents during exercise sessions fostered a sense of community and camaraderie. Some residents enjoyed the exercise program. For instance, one resident enjoyed the exercises so much that she requested to do them daily and even initiated her own sessions. However, there were some challenges as well. Initial resistance from some residents was observed due to changes in their routine. Additionally, there were instances where staff, overwhelmed with daily tasks, either did not encourage or assist residents with their exercises or forgot to mark off the exercise checklist. Despite these issues, it is noteworthy that the program did not incur any costs.

**Missing Data**

There were some instances of missing data, particularly during the initial weeks of the program. This was due to incomplete records of resident participation. Additionally, occasional lapses in data recording occurred because staff were overwhelmed with other duties, which sometimes led to gaps in the documentation of exercise sessions. Despite these challenges, the program continued to evolve and improve based on the data that was successfully collected.
Discussion

Summary

The implementation of the “Gimme 10” exercise program at the microsystem utilized the Plan-Do-Study-Act (PDSA) Quality Improvement (QI) model, providing a structured framework for continuous improvement. In the planning stage, the project team identified the critical issue of high fall rates and established specific goals to reduce these rates by 5% and increase resident engagement in “Gimme 10” exercises by 25%. Detailed plans were developed to integrate these exercises into the daily routines of residents, including comprehensive staff training, scheduling, and communication strategies. During the implementation (Do) stage, the team executed the plan by encouraging residents to participate in the exercises and closely monitoring participation rates. This phase involved documenting any challenges encountered, such as staff availability issues, and addressing these promptly. The study phase focused on analyzing the collected data to assess the effectiveness of the intervention. This analysis included reviewing fall incidence rates, exercise participation, and resident feedback, providing a comprehensive understanding of the program’s impact. In the act stage, the team made necessary adjustments to the intervention based on the findings from the study phase. These adjustments included modifying exercise schedules and enhancing training sessions to ensure comprehensive staff coverage. Continuous communication among staff, residents, and stakeholders was essential throughout the QI process to ensure successful implementation, improve resident safety and well-being, and achieve sustainable outcomes at the microsystem. The specific aims of the project were to reduce the fall rate by 5% and to increase resident engagement in exercises by 25%.
**Key Findings**

The "Gimme 10" exercise program has shown great success since its implementation, particularly in terms of resident engagement and program effectiveness. The exercise program had a great impact on resident participation. Originally targeting 25% engagement, the program has exceeded this goal, with approximately 90% of residents actively participating by July 2024. This high participation rate reflects the program’s success in incorporating physical activity into residents' routines. Additionally, the program's comprehensive staff training has played a crucial role in this success. Well-trained staff have been instrumental in motivating residents and facilitating high engagement levels. The program’s adaptability has also been key. Enhancements to the exercise checklist, such as making it more visually appealing and accessible, have contributed to increased resident participation. Ongoing monitoring and responsiveness to feedback have ensured that the program remains effective and relevant.

**Relevance to Specific Aim**

The findings align closely with the specific aims of the project. Although the program has not yet conclusively demonstrated a reduction in the average number of falls per month to fewer than 2, it is showing a promising trend. Falls were at 3 per month in June 2024, and early data for July suggests a reduction to 2 falls. Continued observation is required to fully assess the program’s impact on fall rates. The program's success in achieving high resident participation rates surpasses the initial goal and underscores its effectiveness in promoting regular physical activity. This aligns with the project’s aim to improve resident engagement in exercise. The comprehensive staff training and program adaptability also support the project’s goals, reinforcing the program’s overall effectiveness in enhancing resident safety and well-being.
Project Strength

The "Gimme 10" exercise program exhibited several key strengths that contributed to its success within the microsystem. The program's reliance on a thorough review of the literature ensured that the exercises were both safe and effective for the residents. Comprehensive training provided to both day and night staff equipped them with the necessary skills to conduct the exercises and engage residents effectively, fostering a supportive and encouraging environment.

Another strength was the program's adaptability. Regular monitoring and feedback allowed for timely adjustments to the exercises and their implementation, ensuring they met the specific needs of the residents. This flexibility helped maintain the program's relevance and effectiveness.

The program’s resident-centered approach was crucial. Personalized exercises and easy-to-follow checklists made the program enjoyable and accessible, encouraging higher participation rates among residents. Additionally, the program's design, which required minimal equipment and space, facilitated its integration into existing routines without needing significant extra resources.

Staff involvement was also a significant factor in the program’s success. Enthusiastic and supportive staff motivated residents to participate consistently, creating a positive and collaborative atmosphere. This engagement not only ensured regular participation but also increased social interaction and community spirit among residents, enhancing their overall well-being.

Finally, the program's success was evidenced by measurable outcomes. The substantial increase in resident participation and the promising trends in fall rate reductions underscored the program’s effectiveness and impact. In summary, the strengths of the "Gimme 10" exercise program include its evidence-based design, thorough staff training, adaptability, resident-focused approach, strong staff involvement, and resource efficiency. These factors combined to ensure
successful implementation and a positive impact on resident safety and well-being within the microsystem.

**Interpretation**

*Comparisons of results with findings from other publications*

The GIMME 10 program has demonstrated a positive success since its implementation, particularly in terms of resident engagement and program effectiveness. Initially targeting 25% engagement, the program has far surpassed this goal, achieving approximately 90% resident participation by July 2024. This high participation rate underscores the effectiveness of the program in integrating physical activity into the residents' daily routines. The comprehensive training provided to staff has been a crucial factor in this success. Well-trained staff members have been instrumental in motivating residents and maintaining the exercise engagement. The adaptability of the program has also played a key role. By making the exercise checklist more visually appealing and accessible, including motivating, and reminding staff members about the exercise program helped with the resident exercise participation. Continuous monitoring and responsiveness to feedback have ensured that the program remains effective and relevant, allowing for ongoing improvements and sustained engagement.

Other studies and reports have also found that structured exercise programs like ours can lower falls rates and increase physical activity in similar settings. This supports our findings and shows that such programs are effective. In a study, *Effectiveness of exercise interventions on fall prevention in ambulatory community-dwelling older adults*, Sadaqa and colleagues (2023) conducted a robust review to see how exercises can help older adults who live on their own in the community. They found that exercises such as strengthening the legs and improving balance
can make a big difference for older people. These exercises not only make muscles stronger but also help older adults move better and stay steady on their feet (Sadaqa, 2023). The research shows that doing these exercises regularly can reduce how often older adults have falls. Other studies have also shown that exercise programs like these are important for keeping older adults safe from falling and getting hurt such as Tai Chi or resistance training and balance exercises. The findings from Sadaqa et al (2023) study confirm that exercises really work in improving how well older adults can move and reducing the risk of falls. This means that exercise programs focusing on strengthening and balance are crucial for older adults, especially those living independently. These programs not only help older people stay active and independent but also prevent injuries that can happen from falling. It's clear from their research and other studies that exercise is a key part of keeping older adults healthy and safe in their everyday lives.

**Limitations**

There were some limitations to be considered for the GIMME10 program that may have influenced the results. Residents’ health, physical abilities and existing exercise habits are some of the reasons that could affect the outcomes. There could have been selection bias, as residents who were already interested in exercise might have been more likely to participate. Similarly, more enthusiastic staff members might have had a bigger influence on the program’s success. The project was based on observational data, which can be less precise than controlled experiments. The data relied on staff reporting, which might have introduced inaccuracies. In such, staff may forget to mark the checklist every time an exercise has been done with resident due to busy workflow. Also, variations in staff availability and involvement impacted the
program's consistency. The results of the "Gimme 10" program might not apply to other care settings. Differences in resident populations, staff training levels, and organizational cultures could affect how well the program works in different environments. The way the program was integrated into daily activities might also differ across facilities, affecting ease of implementation and results.

**Efforts to Minimize Limitations**

Several steps were taken to address these limitations where all staff members received thorough training to ensure accurate data collection and consistent exercise implementation. Both day and night staff were included to cover all shifts. Continuous monitoring and feedback helped identify and fix issues quickly. This approach improved the precision and effectiveness of the program. All residents were encouraged to participate, regardless of their initial interest or physical ability. Standardized checklists and visual aids were used to streamline data collection and minimize errors. These materials were placed in easily accessible locations for both staff and residents. The program was flexible and tailored to the microsystem specific context, making it more relevant. However, this also means adjustments might be needed when applying the program to other settings. Regular review discussion with staff to discuss and address any potential biases or inaccuracies in the data. While the "Gimme 10" program reduced falls and increased physical activity among residents, these limitations suggest that the results should be interpreted with caution.

**Conclusion**

The GIMME 10 exercise program has demonstrated significant success in enhancing resident engagement and promoting physical activity within the microsystem. Initially targeting a
25% engagement rate, the program far exceeded expectations, with approximately 90% of residents actively participating by July 2024. This remarkable increase in participation highlights the effectiveness of the program in integrating physical activity into the daily routines of residents. The improvements in participation not only enhanced physical health but also fostered a greater sense of community and well-being among the residents. A key factor in the program's success was the comprehensive training provided to staff. Well-trained staff members played a crucial role in motivating residents and facilitating high levels of engagement. In addition to their training, regular reminders and motivational efforts helped ensure that staff remained committed to encouraging resident participation. The adaptability of the program also contributed significantly to its effectiveness. By regularly assessing the program and responding to feedback, adjustments were made to enhance the exercise checklist, making it more visually appealing and accessible. These modifications ensured that the program remained relevant and effective, sustaining high levels of resident participation. The sustainability of the GIMME 10 program is evident from its adaptable framework and ongoing improvements. The program’s reliance on existing resources and minimal additional costs further enhances its sustainability. The adaptability of the program, combined with the comprehensive training and continual motivation of staff, ensures that the program can continue to thrive and make a positive impact on resident health and well-being.

Given the success of the GIMME 10 program, there is significant potential for its spread to other contexts. The structured approach, comprehensive training, and adaptable components can be effectively applied to other microsystems aiming to increase physical activity and reduce fall rates among residents. The design of the program, which requires minimal equipment and resources, makes it an attractive model for other healthcare facilities seeking to implement cost-
effective and impactful exercise programs. The findings from the GIMME 10 program have significant implications for practice and further study in the field. The success of the program underscores the importance of well-trained and motivated staff, along with adaptable program elements, in promoting resident engagement. Further research could explore the long-term impacts of such programs on resident health outcomes, including fall rates and overall well-being. Additionally, studies could investigate the program's effectiveness in diverse settings and populations, providing a broader understanding of its potential benefits.

To build on the success of the GIMME 10 program, several next steps are recommended. First, consider expanding the program to other Microsystems within the organization to assess its broader applicability and impact. Enhancing data collection methods to track long-term outcomes, such as fall rates and overall health improvements among residents, is also crucial. Further research should be initiated to explore the long-term benefits of the program and its effectiveness in different contexts and populations. Continuously updating and refining staff training programs based on feedback and observed challenges will ensure high levels of preparedness and motivation. Finally, developing additional resources and materials to support staff and residents will sustain engagement and participation in the program. In conclusion, the GIMME 10 program has shown great promise in enhancing resident engagement and promoting physical activity. Its success, sustainability, and potential for spread to other contexts make it a valuable model for similar healthcare settings. By following the recommended next steps, the program can continue to evolve and expand, further enhancing resident safety and well-being while contributing valuable insights to the field of healthcare and exercise programs.
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