Identifying Factors Related to Long-Term Engagement of Volunteer Leaders in Fall Prevention Exercise Programs: A Qualitative Study

by

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Abstract

Falls are a significant cause of injury, hospitalization, and mortality among aging adults. Exercise is a cost-effective, accessible intervention to reduce fall risk, and many community-based exercise programs rely on volunteers whose consistent engagement is necessary for program continuity. However, high volunteer turnover among this aging demographic threatens program sustainability. Guided by the Volunteer Process Model, this qualitative study explored the factors influencing long-term engagement of volunteer leaders in community-based fall-prevention exercise programs. Eleven individuals who had volunteered for at least two years participated in semi-structured interviews, and data were analyzed using reflexive thematic analysis. The results showed enabling factors included organizational support, program benefits, social connection and peer support. While challenges included time and emotional burden, poor communication and inconsistent support from the organization. Within the Volunteer Process Model, findings suggest the model's stages are iterative, highlighting the need for support, training, resources, and future strategies.

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Chapter 1: Introduction

The increase in the average age of the population is one of the defining demographic trends of the 21st century, and with aging comes a higher risk of falls (World Health Organization [WHO], 2008, 2021). Falls are the second leading cause of unintentional injury deaths globally (WHO, 2021). Beyond mortality, falls increase the risk of dependence, increased health care expenditures, caregiver burden, and functional decline (Appeadu & Bordoni, 2025; Florence et al. 2018). To mitigate this, exercise, particularly balance-challenging exercises, has proven to be the most effective strategy for preventing falls (Sadaqa et al., 2023; Sherrington et al., 2020; Sibley et al., 2024). Thus, community-based exercise programs are commonly used worldwide as a practical approach to reduce the risk of falls and promote healthy aging (Beauchamp et al., 2018; S. Lim et al., 2021). Because these programs are delivered in community settings, their implementation often depends on both health professionals and non-health professional leaders. In a Canadian national survey, only 24% of community-based fall prevention programs are delivered by health professionals and 75.7% are led by non-health professionals, including volunteers (Touchette et al., 2021). These volunteer-led community-based exercise programs have been compared to professionally-led options, showing they are more cost-effective (Adjetey et al., 2023; Lim et al., 2021, 2023).

Despite the demonstrated benefits of volunteer-led community-based exercise programs in promoting physical activity and reducing fall risk among older adults, volunteer turnover remains high, particularly within aging populations (Chen et al., 2020). Although there is a substantial body of research on volunteer retention across multiple disciplines, few studies focus on keeping volunteers engaged over the long-

term in community-based fall prevention exercise programs (Milner & McCullough, 2024; Qu et al., 2024). High attrition not only undermines the sustainability of these essential programs but also threatens their continuity and places additional strain on program resources (Gaber et al., 2022). Additionally, while many studies explore predictors, benefits, barriers, and motivators of volunteering among aging adults (Kim et al., 2020; Lee et al., 2013; Niebuur et al., 2018), there has been limited research that has examined the evolution of these factors beyond the first 12 months of engagement (Chen et al., 2020; Doyle et al., 2013; Elias et al., 2016; Kritz et al., 2021; Scheirer & Dearing, 2011). The limited evidence on how engagement-related factors change over time leaves a gap in understanding long-term engagement among aging volunteers – especially those serving as leaders – in community-based fall-prevention exercise programs. Indeed, much of the existing literature emphasizes volunteer retention, this thesis focuses on sustained (long-term) engagement. Although both terms may seem the same and may be used interchangeably, conceptually, they differ. Volunteer retention focuses on 'how long a volunteer remains active with an organization', emphasizing duration (Gaber et al., 2022; Studer, 2016). However, this thesis explores engagement — not just duration — as a relational, experiential involvement with the program (Alfes et al., 2016; Roda et al., 2012).

This qualitative study adopts the Volunteer Process Model (Snyder & Omoto ,2008) to conceptualize volunteering as an evolving and dynamic process that encompasses three interrelated and sequential stages: antecedents, experiences, and consequences. This thesis follows an article-based format in which the main study findings are presented as a manuscript prepared for publication, supported by an

introduction, literature review, and final discussion chapter that provide context. Thus, the purpose of this study is to understand the factors that influence the long-term engagement of aging volunteer leaders in community-based fall prevention exercise programs. With this purpose in mind, this research aims to address the question: What factors make aging adults remain engaged as volunteer leaders in community-based fall prevention exercise programs for more than two years? To address the research question, an instrumental case study was used. Semi-structured interviews were conducted with volunteer leaders from community fall-prevention exercise programs who consented to participate. The interviews were analyzed within a reflexive thematic analysis framework (Braun & Clarke, 2006, 2019) to identify factors that influence long-term engagement.

The thesis adopts an interdisciplinary framework that bridges public health, kinesiology, and psychology to investigate the long-term engagement of volunteer leaders in community-based fall-prevention exercise programs. This framework helped capture a holistic understanding of the topic by informing the study's rationale, the selection of the program context, data collection and analysis, and the interpretation of findings. The public health perspective shapes the research rationale and significance, highlighting falls as a modifiable public health problem and community-based exercise programs as effective preventive measures (Gillespie et al., 2012; WHO, 2008). The kinesiology component informs the study's contextual boundaries by selecting fall-prevention programs that incorporate exercises that challenge balance consistent with the exercise science evidence (Sherrington et al., 2020; Sibley et al., 2024). While psychology provides grounding through the Volunteer Process Model, which informed

the interview guide and supported the interpretation of motivational and affective processes that sustain engagement (Clary & Snyder, 1999; Snyder & Omoto, 2008). Integrating these disciplines enabled the study to examine long-term engagement from multiple perspectives including the public health importance of fall prevention, the exercise-based context of the programs and individual and relational factors that shaped long-term engagement of volunteer leaders in community-based exercise programs.

This study explored factors related to long-term engagement among aging volunteer leaders in community-based fall-prevention exercise programs. The findings showed that long-term engagement was shaped by a combination of enablers and challenges operating across individual, relational, organizational, and program levels. Enablers included organizational and program support, perceived benefits of the program for leaders and participants, peer and community support, personal attributes, prior experience, and intention to continue. Challenges included role burden, concerns with the program, organizational instability, training and role-readiness concerns, and intention to discontinue.

The findings suggest that long-term engagement is not sustained by one factor alone. Rather, it is influenced by how volunteer leaders' personal motivations, abilities, life circumstances, relationships, and experiences within the program interact over time and with one another. This interpretation is important because it shows that long-term engagement should be understood as a dynamic and context-dependent process, rather than a fixed outcome or the result of motivation alone. Within the Volunteer Process Model, the findings further suggest that antecedents, experiences, and consequences are not strictly sequential but iterative in shaping sustained engagement. In practice, these

findings suggest that organizations seeking to keep volunteer leaders engaged long-term should use multi-level strategies that address individual motivation, relational factors, organizational support, and program structure.

Chapter 2: Literature Review

As the global population ages, the crisis in an already overburdened health sector is worsening (Hajizadeh et al., 2025). Health systems are facing an increased pressure to support healthy aging and prevent avoidable health outcomes such as falls. In response to this, community-based exercise programs have become a cost-effective fall-prevention strategy (Gillespie et al., 2012). Most of these programs are led by volunteer leaders, making volunteer engagement central to their delivery and sustainability (Adjetey et al., 2023; Touchette et al., 2021). These volunteer initiatives bridge gaps in health promotion while fostering social connectedness. However, maintaining long-term engagement among volunteer leaders remain a persistent a persistent challenge. To address this challenge, this literature review synthesizes empirical research on volunteer benefits, motivation, and sustainability, specifically among aging adults leading community-based exercise programs.

Volunteer Opportunities

With the world's population growing older, civic life is evolving, as aging adults play an increasingly active role by dedicating their time, experience, and resources to a wide range of community sectors (Canada, 2016; Musick & Wilson, 2008; Warburton & Gooch, 2007). For instance, in 2023, 11 million Canadians (32%) volunteered formally, contributing 1.2 billion hours (Government of Canada, 2025a); older adults typically contribute more hours than others in other age demographics (Government of Canada, 2021b).

The definitions of volunteering vary throughout the literature; however, some describe it as a sustained, organized, and prosocial behaviour aimed at helping others,

particularly strangers (Geiser et al., 2014; Lee et al., 2013; Penner, 2002). The active aging framework expands this view by describing volunteering as a meaningful, unpaid activity, undertaken with free will that enhances social engagement and community belonging (Grinshteyn & Sugar, 2021), while the United Nations frames it as civic participation, mutual support, and traditional self-help, driven by public benefit rather than financial reward (United Nations General Assembly, 2001). Drawing from these perspectives, Neely et al. (2022) report a working definition of a volunteer as one who willingly contributes time and effort, without financial compensation, to support individuals, organizations, and/or communities.

Aging adults frequently seek volunteer opportunities that allow them to share experiential knowledge, have purposeful roles, remain socially connected, and maintain active lifestyles (Huang et al., 2025; Shorey et al., 2025). For example, an umbrella review revealed a broad range of activities, including civic engagement, health care support, recreation, arts, and culture, in which aging adults participate (Nichol et al., 2024). More specifically, for health promotion, aging adults often take on peer leadership roles, such as walking group leaders, program advocates, and group exercise leaders (Khong et al., 2015; Kritz et al., 2021). Volunteering in physical activity programs is particularly notable, as it not only fosters health benefits for the volunteers themselves, but also enhances access and participation for peers (Bilsborough et al., 2025; Wall et al., 2025). However, the extent to which these dual benefits —personal and communal —are sustained remains underreported. Most existing evidence is short-term or descriptive, rarely assessing how volunteers' initial motives evolve into longer-

term commitments or how program structures support that sustainability (Boutilier et al., 2025; Martela & Ryan, 2020).

Building on this understanding of volunteer opportunities in later life, it is equally important to contextualize the roles of volunteers in health and society with the knowledge that, as populations age, the risk of falls increases (World Health Organization, 2008). Thus, community-based exercise programs, particularly those focused on fall prevention, have emerged as a key strategy to address these challenges (Gillespie et al., 2012; Lim et al., 2023; Washburn et al., 2020). Positioning within this context not only highlights the value of volunteers as facilitators of healthy aging but also the relevance of their sustained participation to the effectiveness and continuity of such programs.

Aging, Exercise and Falls

This demographic shift associated with global aging has been linked to increases in life expectancy and declines in fertility rates (World Health Organization, 2024). It is noteworthy that aging adults exhibit a wide range of functional abilities across communities and institutions (Garcia Diaz et al., 2022). In Canada, for example, 93% of aging adults live in community settings, are non-institutionalized, remain in their usual living arrangements, have access to community services, and participate in community programs (Garcia Diaz et al., 2022; Garner, 2018). This trend reflects a demographic that seeks independence and autonomy for as long as possible while living in the community (Wiles et al., 2012). However, even though the community serves as a place for aging adults to live and participate in activities, the incidence of falls – one of the most prevalent and preventable causes of injury in this demographic – is significant

among community dwellers with an estimate of one in three falling per year (Lim et al., 2023; Meulenbroeks et al., 2024). According to the World Health Organization (2021), falls are the second leading cause of unintended injury-related death among aging adults. For example, in Canada, fall-related hospitalizations increased by 47% from 2009 to 2020, while fall-related deaths rose by 111% with advancing age from 2001 to 2019 (Public Health Agency of Canada, 2024). In response to this increasing burden, several studies support that exercise is the single most effective approach to reduce the risk of falls (Caristia et al., 2021; Sherrington et al., 2019, 2020; Sun et al., 2021)

Previous studies show that exercise reduces falls by approximately one-quarter (23%) (Sherrington et al., 2019). Similarly, in their landmark Cochrane review of 159 randomized controlled trials (RCTs) with 79,193 participants from community and residential care settings Gillespie et al. (2012) showed that exercise is effective in preventing falls. While Cochrane's review strengths lie in its statistical power and breadth, including community and institutionalized dwellers and mixed interventions with exercise (e.g., exercise + education), it introduces heterogeneity that limits the specificity of the findings for community-dwelling adults. In contrast, Sadaqa et al. (2023) reported studies that included exclusively randomized controlled trials involving community-dwelling adults, using exercise as the only intervention to achieve a reduction in falls. Sadaqa et al. (2023) noted that for ambulatory community dwellers, ongoing physical exercise – of sufficient frequency and intensity – is effective for improving functional ability and in reducing falls and fall-related injuries. Despite this evidence highlighting the effects of exercise on falls risk, it did not consider other

contextual variables such as program accessibility, volunteer involvement, or low-income countries (Sadaqa et al., 2023).

More specifically, Sherrington et al. (2017) highlighted the superiority of balance-challenging activities for aging adults over other forms of exercise for reducing the risk of falls. Notably, Tricco et al. (2017) and Sibley et al. (2024) found a greater reduction (42% to 51%) than general exercise when balance exercises were combined with a total weekly exercise volume of three hours or more. Adding further weight to this evidence, the population-level report by Guirguis-Blake et al. (2024) underscored that community-delivered exercise programs, especially those emphasizing balance and functional movement, are essential for achieving population-wide fall-prevention outcomes. Collectively, these findings reinforce the consensus that balance-focused, community-based exercise programs represent a cornerstone of effective fall-prevention strategies for older adults.

Community-based exercise programs have emerged as an effective response to improving the well-being of aging adults by offering inclusive programs (Lim et al., 2021; Washburn et al., 2020). These programs typically cater to aging adults 50 years and older (Tcymbal et al., 2022; Woods et al., 2024). In particular, these programs are designed to promote physical activity and reduce the risk of falls among aging adults, while also fostering social connections and civic engagement (Bouchard et al., 2021; S. Lim et al., 2021). Significantly, these programs rely on volunteer leaders, whose engagement enhances sustainability and peer relatability (Beauchamp et al., 2018; S. Lim et al., 2021). The volunteer-based model operationalizes the principle of active aging and role continuity, allowing aging adults to be active agents of change within

their communities (Canada, 2016; Grinshteyn & Sugar, 2021; Rowe & Kahn, 1997). Also, these programs adopt a dual-pronged approach of addressing the health and social needs of older adults receiving the program while empowering volunteer leaders with meaningful roles that enhance their sense of purpose and belonging (Washburn et al., 2020b).

Recent studies provide strong evidence of the economic value of community-based exercise programs for aging adults (Adjetey et al., 2023; Aranda-Reneo et al., 2021; Crist et al., 2022; Snowsill et al., 2022). For example, a review by Pinheiro et al. (2023) of physical activity programs for aging adults across multiple settings found that 86% of interventions were more costly but also more effective at improving various health outcomes, particularly when compared to no intervention. However, a more specific review on exercise-based fall-prevention programs supports these programs as cost-effective strategies for preventing falls (Winser et al., 2020). Similarly, Aranda-Reneo et al. (2021) reported that integrating exercise programs for older adults not only enhances health outcomes but also contributes to reducing overall healthcare costs, reinforcing the value of preventive, exercise-based interventions in aging populations.

It is evident from the literature reviewed for this thesis research that exercise programs incorporating balance-challenging exercises for community-dwelling older adults significantly reduce the rate and risk of falls. Nonetheless, sustaining the impact of these programs depends on community support, particularly through the contributions of aging volunteers who play a pivotal role in program delivery (Gaber et al., 2025). Community support can be enhanced by involving community volunteers to reduce costs and promote social participation (Beauchamp et al., 2018; Washburn et al., 2020).

Predictors, Motivations, and Barriers to Volunteering

Previous studies have highlighted various sociodemographic predictors for volunteering among aging adults, including gender, ethnicity, education, and income (Musick & Wilson, 2008; Niebuur et al., 2018; Tang et al., 2009, 2012). For instance, longitudinal evidence by Niebuur et al. (2018) found that higher income levels, prior volunteering, church attendance, and more education are predictors of volunteering. These predictors provide insights into who is more likely to volunteer and may influence the perceived ability to engage in and continue volunteering among aging adults (Niebuur et al., 2018; Tang et al., 2010).

Kim et al. (2020) report that volunteering for 100 hours or more per year is associated with a greater sense of purpose and a lower mortality risk. Volunteering also enhances psychological well-being, social integration, and overall quality of life among aging adults (Anderson et al., 2014; Jiang et al., 2024). Furthermore, aging adults gain a sense of belonging from interactions with the groups, which strengthens engagement (Kritz et al., 2021; Same et al., 2020; Tsai et al., 2022). While the above is tied to volunteering in a broader context, Same et al. (2020) reports that volunteering in physical activity programs not only supports individual physical health, but also reduces loneliness through social participation, while simultaneously reinforcing commitment. Collectively, these findings, though reflecting the benefits of volunteering, suggest that satisfying these core psychological needs offers aging adults the intrinsic motivation to keep volunteering (Anderson et al., 2014; Martela & Ryan, 2020; Same et al., 2020).

While the above illuminate key drivers of volunteering, they often underrepresent the contextual realities that influence how and why volunteers sustain

engagement over time, particularly among aging adults. Studies have shown that factors such as altruistic motivation, increased feelings of happiness, and a sense of purposeful role identity are critical for continued volunteering (Boutilier et al., 2025; Jongenelis et al., 2022; Tsai et al., 2022). However, a recurring limitation of the above evidence is that it is mostly cross-sectional, capturing snapshots of motivations at a given point in time. Consequently, there remains a need for qualitative inquiry – particularly in community-based exercise programs - capable of capturing the nuanced, retrospective, lived experiences of volunteers and explaining how motivations shift or persist as volunteers age and their roles evolve (Cousineau & Misener, 2019; Hotta & Ishimaru, 2024; Same et al., 2020a). Adding important nuance to this discourse, a recent scoping review Bilsborough et al. (2025) specifically examined volunteering in physical activity programs among adults aged 50 and older, highlighting three recurring motivational themes for continued volunteering: altruism, experience, and personal improvement. Building on this evidence reinforces the need to contextualize sustained volunteer engagement among aging adults within community-based settings.

Motivations and Barriers to Long-term Volunteering

The terminology used to describe long-term volunteering lacks a consistent definition across the literature. However, sustainable volunteering extends beyond focusing on duration alone, but requires a balance between social and personal factors that nurture sustained engagement (Same et al., 2020; Sellon, 2014; Tsai et al., 2022). Conversely, when program expectations or role designations are unclear or when barriers arise, dropout rates invariably increase (Sellon, 2014; Tang et al., 2010; Witucki Brown et al., 2011). Thus, a long-term volunteer is commonly defined as an individual

who remains actively engaged for more than one year, often committing at least one hour per month to one or more organizations (Elias et al., 2016; Gaber et al., 2022; Liu et al., 2023).

While motivations for volunteering are well known, those related specifically to long-term volunteer retention in community exercise programs are scarce. Studies consistently show that recognition, external validation, empowerment, and encouragement from friends, peers, or program organizers play a vital role in ongoing volunteer engagement among aging adults (Tang et al., 2010; Tiittanen & Turjamaa, 2022). Additionally, organizations implementing motivational strategies, including formal and informal recognition and ongoing structured training, are better at keeping aging volunteers motivated and engaged (Washburn et al., 2020). However, despite evidence suggesting that structured training, mentoring, and periodic upskilling are associated with better adherence and lower attrition among volunteer leaders, reporting on these elements remains uneven (Beauchamp et al., 2018; Lim et al., 2021).

Several studies identify various barriers that hinder sustained volunteering among aging adults. Time commitment is a recurring barrier to volunteering in programs (Witucki Brown et al., 2011). This suggests that volunteers are overcommitted in various roles within the community and families, thus often feeling time-crunched and not volunteering as much as they would want to (Creary & Gordon, 2016; Witucki Brown et al., 2011). Similarly, Morrow-Howell and Greenfield (2012) observe that balancing a volunteer leadership role with other community/family roles frequently leads to role strain and overextension. This perspective suggests that altruism alone may be insufficient to sustain engagement.

In addition to time-related concerns, unclear role expectations and transportation challenges are other barriers to continued volunteering (Wall et al., 2025). Beyond these logistical issues, health decline is another major barrier to volunteer engagement with aging adults (Tang et al., 2010). This implies that aging adults in better health are indeed more likely to volunteer, even though volunteering itself is linked to improved health outcomes (Gan & Ang, 2024). However, these barriers do not end at physical health alone. Tang et. al (2010) argue that mental health is a stronger predictor of volunteer retention than physical health among aging adults, suggesting that psychological resilience may be as crucial as physical capacity in sustaining engagement. In this regard, reports indicate that mental health factors, including burnout and stress, play a critical role in volunteer attrition over time (Sellon, 2014).

However, most volunteer studies that address barriers examine them in isolation, not considering how they interact with other factors. For example, the challenge of time may be reduced with a shared volunteer leadership model, yet only limited studies have tested this adaptive approach empirically (Beauchamp et al., 2018; Fransen et al., 2022; Washburn et al., 2020). Similarly, the interaction between age-related health decline and program support is underexplored, even though supportive climates buffer against dropout among older volunteers, suggesting a case for research on long-term engagement of aging adults. Multi-site analyses report substantial early attrition among newly trained leaders (approximately 49% dropout), underscoring the load that repeated recruitment/training imposes on programs (Chen et al., 2020). While such high turnover rates seem to negate the cost-effectiveness of community-based exercise programs,

Fransen et al. (2022) report indicates that introducing a shared leadership model offers a lever to reduce turnover as responsibilities are distributed among multiple leaders.

The synthesis of motivational and barrier-focused volunteer research highlights the need for holistic models and frameworks that transcend beyond studying sustained volunteering engagement through isolated variables. Although existing studies have identified various predictors, motivations, and barriers to volunteering, they often overlook how these dimensions interact to shape volunteers' experiences over time (Anderson et al., 2014; Niebuur et al., 2018; Tang et al., 2010). Therefore, integrating angles that account for antecedents, experiences, and consequences is crucial for explaining long-term volunteer engagement as a dynamic process rather than a static outcome (Snyder & Omoto, 2008). This perspective calls for approaches—particularly qualitative ones—that can capture the complexity, interdependence, and contextual realities of volunteering among aging adults. This lens is especially relevant in community-based exercise programs, where volunteer leaders are central to delivery in a sustainable way.

Sustainable Volunteer Activities

Volunteer turnover in programs occurs when a volunteer willingly ceases to engage with that organization or program, while volunteering is sustained when a person consistently engages in volunteering activities (Forner et al., 2023). Unlike paid work, where turnover is easier to record, volunteering presents greater complexity because volunteers are not required to submit any resignation or discontinuation notice (Griffeth et al., 2000); thus, the individual simply stops showing up. When volunteers stop showing up, however, is not consistently documented in the literature. Kritz et al. (2021)

reported very early attrition within 4 to 6 weeks among volunteers aged between 66 and 75 years who received training for walking groups, while Chen et al. (2020) reported attrition among trained volunteer leaders - who had varied roles ranging from relational to compassionate care for seniors – in senior care of 67.9%, 53.7%, and 30% across 2017, 2018, and 2019, respectively. Taken together, these findings highlight both the invisibility and unpredictability of volunteer drop-off, underscoring the need for sustainable volunteering.

The literature defines sustainability as the degree to which an innovation remains operational for more than one year after initial implementation efforts (Doyle et al., 2013; Kastner et al., 2017; Pluye et al., 2004, 2004; Scheirer & Dearing, 2011; Tricco et al., 2013). In volunteering, sustainability means encouraging meaningful engagement that considers social, organizational, and personal needs (Abd Rahman, 2023). Furthermore, stemming from volunteer research, sustainable volunteer activities are designed so that volunteers remain active and fulfilled while fully integrated in a supportive organizational structure for ≥ 1 year or multiple program cycles (Gaber et al., 2022; Liu et al., 2023). In line with this, Elias et al. (2016) define a long-term volunteer as someone engaged with one or more organizations for at least one hour per month over one year. Notably, Krzeczkowska et al. (2021) reported that certain community-based programs have successfully retained older adult volunteers for up to seven years. This demonstrates that long-term engagement is achievable and sustainable.

Understanding sustainable volunteering is not just about duration metrics but about recognizing that volunteering is a renewable resource whose flow must be nurtured for ongoing success (Koolen-Maas et al., 2023). Therefore, community-based

exercise programs can be viewed as sustainable volunteer activities when volunteer motivations and organizational culture align to foster individual satisfaction and program continuity over time (Gaber et al., 2022; Washburn et al., 2020).

Therefore, the relationship between volunteer motivation, individual satisfaction, organizational culture and program continuity highlights the need for a structured theoretical lens to explain how and why volunteers remain committed over time (Haski-Leventhal & Bargal, 2008; Snyder & Omoto, 2008). Despite the earlier-identified facilitators and barriers to sustained volunteering, there is a need for a theoretical lens that provides a structured model or framework for systematically examining these interactions (Ryan & Deci, 2000; Snyder & Omoto, 2008). Accordingly, the following section introduces the theories, models, and frameworks useful in studying sustainable volunteerism. Theories, Models, and Frameworks offer a lens for understanding the processes that influence long-term volunteer engagement and sustainability in community-based exercise programs (Gilbert et al., 2021).

Theories, Models, and Frameworks

Theories, Models, and Frameworks support in identification of key variables, address problems, ensure research continuity, and highlight the psychological foundations of volunteer behavior (Hustinx et al., 2010). This enables the replication of more successful programs across different cultures. A model or framework can be used to explore or understand how antecedents (motives, health), experiences (training, role clarity), and organizational context (leadership and resources) interact to influence long-term engagement among volunteer leaders in community exercise programs (Chacón et al., 2007; Lim et al., 2023; Omoto & Synder, 2002).

Research on volunteering spreads across diverse disciplines, including psychology, which examines individual motivation, identity and satisfaction (Toscano & Zappalà, 2024); sociology, highlighting community participation and social capital (Dederichs, 2024); public health, exploring how volunteering promotes well-being and healthy aging (Nichol et al., 2023); and management studies, focusing on organizational factors and volunteer motivation (Chen et al., 2022). Across these fields, frameworks such as Ryan and Deci's (2000) Self-Determination Theory or Clary and Snyder's (1999) Functional Approach to Volunteerism reflects the dynamic interplay between intrinsic and extrinsic motives among volunteers. Several theories, models, and frameworks can be applied to volunteer research, and a few are highlighted below.

The Self Determination Theory posits that sustaining volunteer engagement is dependent on satisfying three basic psychological needs: autonomy, relatedness, and competence (Deci & Ryan, 2000; Ryan & Deci, 2000). Volunteer studies show that autonomy-supportive leadership and well-designed roles predict need satisfaction, autonomous motivation, engagement, and lower dropout intentions. This theory pairs well with the Volunteer Process Model to test if volunteer leader autonomy is connected to their motives and long-term engagement (Haivas et al., 2012; Ryan & Deci, 2000).

The Three-Stage Model of Volunteers' duration of service provides a nuanced approach for analyzing the factors shaping volunteer behavior and retention over time (Chacón et al., 2007). Developed to resolve contradictions in prior theories, particularly the role identity theory (Dávila et al., 2010). They authors argue distinct factors influence volunteer behaviour at different stages, drawing on longitudinal data. This model's pathway of volunteer satisfaction to influencing organizational commitment and

the intention to remain not only clarifies how experiences convert into tenure but can also be embedded in the Volunteer Process Model to study volunteer retention (Chacón et al., 2007; Snyder & Omoto, 2008).

Volunteers perceive their roles differently; some view it as central to their self-identity, while others see it as a fun activity or an obligation (van Ingen & Wilson, 2017). Based on this, the Role Theory offers two distinct yet complementary perspectives on the impact of volunteering on the lives of older adults: role substitution and role enhancement (Berg & Johansen, 2017; Niebuur et al., 2022). From both perspectives, aging volunteer see their volunteer roles as a replacement to previous work or an enhancement of current leadership roles in the community. The Role Theory further considers variations in volunteering motives, explaining the transition from altruistic to egoistic motives (Berg & Johansen, 2017). Retention increases when 'volunteer leader' becomes a salient identity. This is applicable in community-based exercise programs where this social identity increases adherence (Beauchamp et al., 2018).

Expectancy-Value Theory explains how individuals make decisions by weighing the perceived value of volunteering against their expectations of success (Wigfield, 1994; Wigfield & Eccles, 2000). The theory suggests that volunteers are more likely to engage in volunteer work when they perceive a high probability of success and when they find that what they gain from it is valuable or desirable (Abdile & Zhang, 2024). This perspective highlights that engagement is shaped by an ongoing assessment of both competence and reward. Furthermore, these expectations are influenced by the beliefs associated with volunteering, such as perception of commitment, perception of

competence, individual goals, and the perception of other people's attitudes and expectations for them (Wigfield et al., 2016).

Theory of Planned Behaviour posits that volunteering is shaped by intentions, which are influenced by attitudes, subjective norms, and perceived behavioural control (Ajzen, 1991). This theory helps explain why aging adults begin volunteering, as their intentions are based on existing beliefs about the value and expectations of volunteering (Brayley et al., 2015). However, while this theory has strong predictive ability with a focus on the intention, it is limited by its inability to capture lived experiences and contextual influences.

The Volunteer Process Model offers a comprehensive, process-oriented model for examining how and why aging adults volunteer and what sustains them in their volunteer work. The dynamic process of this model is reflected in its three interrelated stages: antecedents, experiences, and consequences (Omoto & Synder, 2002; Snyder & Omoto, 2008). At the antecedents' stage, the model isolates personality, circumstantial, and motivational characteristics of aging adults that may predict becoming a volunteer, an emphasis supported by research showing that initial motives and expectations often shape early engagement in later-life volunteering (Chacón et al., 2007; Dávila et al., 2010). The experiences stage of the model explores the behavioural and psychological aspects of interpersonal relationships among volunteers, participants, and program staff in community-based exercise programs. This stage also highlights the behavioural patterns and relationship dynamics that influence the continued service of aging volunteers and the positive benefits to participants in these programs. This focus aligns with studies demonstrating that role clarity, autonomy, training experiences, and

supportive interpersonal relationships strongly influence ongoing volunteer commitment and satisfaction (Lim et al., 2023). The consequences stage then focuses on the impact and outcome of volunteering, including changes in attitudes, knowledge, and behaviour (Omoto & Synder, 2002; Snyder & Omoto, 2008). Taken together, this multi-stage approach is critical in community-based exercise programs, where sustained engagement of these volunteers is key to program continuity (Qu et al., 2024; Snyder & Omoto, 2008)

A key strength of the Volunteer Process Model is its ability to situate and bridge volunteerism across individual, interpersonal, and organizational levels (Omoto & Synder, 2002; Snyder & Omoto, 2008). However, for this study, the individual level of the model is intentionally prioritized as it allows for a deep exploration of aging volunteers' personal motives, evolving experiences, meanings, and outcomes – all of which are central to their sustained engagement (Snyder & Omoto, 2008). This aligns with prior research that shows individual-level variables as strong predictors for sustained engagement (Adams et al., 2025a; Dávila, 2009). Additionally, the Volunteer Process Model integrates with other theories and frameworks, like the Self Determination Theory and the Three-Stage Model of Volunteers' duration of service, to study long-term volunteer engagement among aging adults in community-based exercise programs (Chacón et al., 2007; Ryan & Deci, 2000; Snyder & Omoto, 2008).

Taken together, these theories, models, and frameworks offer conceptual groundings for understanding the complexities of volunteerism among aging adults. However, the Volunteer Process Model emerges as the most appropriate foundation for contextually capturing the dynamic, evolving, and individualized nature of long-term

volunteer engagement, particularly among aging adults in community-based fall prevention exercise programs (Omoto & Synder, 2002; Snyder & Omoto, 2008). While complementary frameworks such as Self-Determination Theory (Ryan & Deci, 2000), the Three-Stage Model of Volunteers' Duration (Chacón et al., 2007), Role Theory (Berg & Johansen, 2017), the Expectancy-Value Theory (Wigfield et al., 2016), and the Theory of Planned Behaviour (Ajzen, 1991) illuminate specific motivational, cognitive, and role-related influences, the Volunteer Process Model uniquely integrates these insights within a holistic process that spans antecedents, experiences, and consequences. By prioritizing the individual level of the model in the context of community-based exercise programs, it captures volunteers' personal motives and lived experiences (Snyder & Omoto, 2008). This model's integrated approach also ensures that the contextual findings will meaningfully inform strategies to support, sustain, and empower volunteer leaders in community-based fall-prevention exercise programs.

Gap in literature

Although volunteer-led fall-prevention programs contribute significantly to community health and are often praised for their cost-effectiveness, their sustainability remains poorly understood. Research on volunteerism among aging adults is abundant but uneven, with most studies emphasizing short-term retention metrics or descriptive accounts of initial motivations. Limited research examines how and why volunteers remain engaged beyond the first twelve months, despite evidence that early attrition rates can exceed 40–50% in some programs. Existing studies also tend to conceptualize volunteer retention primarily in terms of duration, overlooking the experiential and relational dimensions that constitute sustained engagement. Additionally, it is

undeniable that older volunteers significantly contribute to alleviate the growing pressures on the health system by leading sessions at these community-based exercise programs.

Using the Volunteer Process Model, this study proposes a qualitative design to understand factors that enable or hinder long-term volunteer leadership among aging volunteers who have served for two or more years. Through an interpretive case study, it seeks to uncover the nuanced, dynamic, and context-specific factors that support or hinder long-term volunteer engagement—insights critical for strengthening the sustainability of community-based fall-prevention programs and an empirical foundation for developing targeted engagement strategies for this aging demographic.

Chapter 3: Article

Identifying Factors Related to Long-Term Engagement of Volunteer Leaders in Fall Prevention Exercise Programs: A Qualitative Study

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Abstract

Background: With global aging, the prevalence of falls is increasing. Exercises challenging balance are the most effective strategy for reducing falls; up to 42–51% reduction when done year-round. To support the delivery of these exercises, community fall prevention exercise programs have emerged in the past decades. Community-based exercise programs are delivered through a range of models, in-person, online or hybrid, often involving peers acting as volunteer leaders. However, high turnover threatens the long-term engagement of these volunteer leaders. It is thus important to understand what factors are important for long-term engagement.

Methods: This instrumental qualitative case study used an interpretive paradigm to understand enablers and challenges for peers acting as volunteer leaders to offer community fall prevention exercise programs. Recruitment was conducted by program managers using purposive sampling. To be eligible, volunteer leaders had to be aged 50 years and older and have led classes for two consecutive years. The interview was conducted virtually or in person. The interview guide was developed using the Volunteer Process Model. Data were analyzed using Reflexive Thematic Analysis, charted and further mapped onto the constructs of the Volunteer Process Model for interpretation.

Results: Eleven participants were interviewed; 10 identified as female and 1 as male, aged 55–77 years. Prominent enablers included organizational support, such as training and administrative communication; perceived benefits of the program for leaders and participants, including better health and social connection; peer support; and willingness to continue. Prominent challenges included burden, such as the physical, time and emotional demands of leading classes; concerns with the program, including changes in

program delivery or reduced program features; organizational instability, such as weakened communication or inconsistent support; and intention to discontinue.

Conclusion: This study suggests that long-term engagement among aging volunteer leaders is not sustained by a single factor, but by a combination of individual, relational, organizational, and program influences. Factors influencing long-term volunteer engagement were interrelated and shaped by the program setting. Within the Volunteer Process Model, the findings suggest that the antecedent, experience, and consequence stages are not strictly sequential but iterative in shaping long-term engagement. Organizations should focus on consistent support, meaningful social connection, role value, training, and resources to help aging volunteer leaders feel confident, capable, and motivated to remain engaged over time. Additionally, future research should develop, and test strategies based on these findings to test if it is possible to increase long-term engagement among aging volunteer leaders.

Keywords: “Volunteer leaders”, “Volunteer Engagement”, “Fall Prevention”, “Aging”, “Community-Based Exercise Programs”, “Balance Exercise”, “Volunteer Process Model”.

Background

With people living longer globally, aging is a defined demographic trend of the 21st century [1]. As more people live into older age, health conditions and events that come with getting older become health priorities. Falls are a major public health concern, with approximately 28-33% of individuals falling every year [2]. As the population ages, the prevalence of falls is likely to increase [2,3]. Falls are the second leading cause of unintentional injury-related deaths globally [3]. Even non-injury falls are linked with negative impacts, including depression, anxiety, fear of falling and decreased mobility, all of which affect the quality of life of the individual [2].

Exercise has proven to be the most effective single strategy to reduce the risk of falls[4–6]. More specifically, when performed all year round and for up to three hours or more weekly, exercises that incorporate balance challenges reduce fall risk by up to 42-51% [7]. To support the delivery of these interventions, community-based exercise programs have emerged as an accessible and effective approach to support the well-being of aging adults [8–10]. These programs are particularly valuable because they can bring fall prevention activities closer to where aging adults live and socialize. These community-based exercise programs may be delivered through a range of models, including volunteer peer-led [4,11].

In a Canadian national survey, only 24% of community-based fall prevention programs are delivered by health professionals, and 75.7% are led by non-health professionals, including volunteers [61]. Volunteer-led community-based fall prevention exercise programs are effective, especially when targeting primary prevention and low-

risk participants[6,8]. In addition, peer volunteers increase participant self-efficacy and confidence in their ability to complete the exercises[12]. Another advantage of volunteer-peer-led community-based exercise programs is their cost-effectiveness compared to using health professionals[12] , leading to greater program sustainability. Despite these benefits, poor volunteer engagement and high volunteer turnover in this aging population threaten the sustainability of these essential programs [13,14].

Broadly, volunteers are defined as members of the community who give their time freely and willingly to engage in activities that help others without remuneration [15]. The reasons to engage in volunteer activities have been studied lots reporting personal values, social connection, interest in the activity, and the desire to contribute to others[16–18]. Globally, the volunteering sector is experiencing a significant decline in volunteer numbers [15] with an estimated 44% decline in the volunteer workforce between 2018 and 2021 [19,20]. This decline suggests that when volunteers stop volunteering, they are not readily replaced [19], raising concerns for programs that depend on volunteers for ongoing delivery. This limited replacement of volunteers is particularly concerning in programs managed by non-profit organizations, where the high cost of training volunteer leaders, coupled with a high turnover, adds a strain [21]. Tang et al. [22] identified volunteer experience, adequate organizational support and availability of stipends as factors influencing volunteer turnover in various organizations that use volunteers. However, understanding why volunteers leave differs from understanding what sustains long-term engagement. Therefore, these factors do not fully explain how aging volunteer leaders remain engaged over time in community-based fall prevention programs.

This present study explored enablers and challenges influencing long-term engagement of aging volunteers in community-based fall prevention programs. Identifying these factors is essential to developing strategies to help long-term engagement in fall-prevention exercise programs in the community.

Methodology

Theory, Model and Framework Guidance

Theories, models, and frameworks support the identification of key variables, address problems, and ensure research continuity [23,24]. Research in volunteering studies spreads across several disciplines, and across these fields, frameworks such as the Volunteer Functions Inventory, Self-Determination Theory, the Three-Stage Model of Volunteers' Duration of Service, Expectancy Value Theory, and the Volunteer Process Model all reflect key motives for volunteering[25–29].

For this study, the Volunteer Process Model (Table 1) was selected because it allows for a process-oriented approach to understanding volunteering as a dynamic, sustained activity. Also, unlike other models, the Volunteer Process Model considers volunteering across antecedents, experiences, and consequences, making it more suitable for this study on long-term engagement. Although other models were considered, they were less aligned with the purpose of this study. For example, the Volunteer Functions Inventory[27,30] focuses on motivational functions of the volunteer rather than the full process of engagement, while Self-Determination Theory[28,31] limits volunteer engagement to psychological needs: autonomy, relatedness, and competence. Therefore, the Volunteer Process Model was more appropriate because it allowed this

study to examine long-term engagement as a process determined by what occurs before, during, and after the volunteering experience. Only the individual level of analysis of the Volunteer Process Model was utilized, as this study aimed to understand the views and lived experiences of the volunteer leaders themselves [29,32]. Since data were collected from volunteer leaders and not program managers, organizations, or policy influencers, the individual level was the most appropriate analytical focus. This aligns with prior research that shows individual-level variables as strong predictors for sustained engagement [33,34].

Table 1: Volunteer Process Model and Relationship to the Study

Component	Key Constructs	Relevance	Integration
Antecedents	Volunteer personality, motivations, constraints, life norms, socio-demographic factors, perceived role identity	Support understanding of why aging adults should volunteer.	Participants' past experiences, Reasons to start.
Experiences	Interpersonal relationships dynamics, behavioural patterns. social support, recognition, role strain, and autonomy.	Understanding of ongoing processes influencing long-term engagement.	Training experience, relationships, challenges, and success.
Consequences	Changes in attitude, knowledge, behaviour, satisfaction, intention to continue or discontinue, and volunteering benefits.	This will help interpretations of why volunteers continue to stay engaged long-term.	Pros and Cons to long-term engagement: barriers, motivations, or intentions.

This is an instrumental qualitative case study - as it allows for a focus on the phenomenon to understand the factors that influence long-term engagement among

aging adults in community-based fall prevention exercise programs - guided by an interpretivist paradigm[35]. This is consistent with Stake's perspective that reality is subjective, context-bound, and co-constructed [36,37]. Therefore, this thesis adopts an interpretivist, qualitative design to understand the lived experiences of volunteer leaders aged 50+ in community-based fall prevention programs, in context. The emphasis on long-term engagement and researcher-participant interaction aligns with Stake's epistemological stance and the choice of this design[36,37]. While Stake's work informed the epistemological orientation of this case study, Cresswell and Poth's description of case study features was used to operationalize this approach (see Table 2). Data were collected through individual interviews[38]. Reflexive thematic analysis was then employed[39,40]. Coding was conducted inductively, while the Volunteer Process Model guided the interpretation of the themes. Taken together, these processes illuminated the lived experiences of volunteer peer-leaders in community-based fall-prevention exercise programs. The study design was approved by the Research Ethics Board of the University of New Brunswick, Canada (2025-256).

Table 2: Case Study Design and Relationship to this Study

Features of a Case Study[35]	**Connection to Study**
Identification of a specific case	Exploring empirical factors influencing long-term engagement among volunteer leaders age 50+ in community fall prevention exercise programs.
The case must be bounded, meaning it can be defined within a given time and location.	The bounded system is ageing volunteer leaders from two community fall prevention exercise programs, focusing on leaders who have served for at least two years. Each program is a case bounded in time and place.

There must be an in-depth understanding of the case, relying on multiple data sources.	Focusing on long-term volunteer engagement in community-based exercise programs for ageing adults in Canada. Semi-structured interviews will be the primary data source, while researcher field notes will provide additional context.
Existence of a rich narrative	Presenting themes and narratives that explain the lived experiences of these volunteer leaders.

Method

Setting and Participants

Study participants were purposively sampled from volunteer peer in two existing fall prevention exercise programs offered in Canada. The program managers sent invitations to their leaders via email outlining the study's purpose and eligibility criteria – must be aged 50+, be a leader for at least two years and must have led fall prevention exercises for at least 12 weeks, e.g., for at least 24 hours, for example, 24 one-hour classes delivered twice per week over 12 weeks, in each of the past two years each. This criterion was used as study-specific because fall prevention exercise programs run in terms of 12 weeks. At the time of recruitment, these programs had approximately 100-120 volunteer leaders leading various terms; however, not all of them met the eligibility criteria. Those interested contacted the researcher, and if they agreed to be interviewed, arrangements were made to meet at a specific time and date - in person, in a private room at the University, or virtually on Microsoft Teams. Each participant was given an oral explanation of the study objectives, methods and the voluntary nature of their participation. No participant formally declined or stated any reason for not taking part. Oral consent was provided by participants - virtually (10 individuals) and in-person (1 individual).

Research Team and Reflexivity

The principal researcher, COTU, is a female graduate student in Interdisciplinary Studies who led this study as her master's thesis project, and participants were informed of it. She has a background in medicine, public health, volunteer studies and community-based exercises. At the time of this study, she had been involved in one of the community-based fall prevention exercise programs studied as a staff. This background informed her interest in understanding the factors influencing long-term engagement of volunteer leaders in fall-prevention exercise programs. However, it is important to note that no prior relationship existed between COTU and participants before recruitment. COTU also conceptualized the project, recruited participants and analyzed the data.

The second coder, MFFD, is a female graduate student with experience in qualitative and quantitative studies on falls and community-based exercise programs. JRE (PhD) is a professor and male researcher with experience in qualitative research, volunteering studies and interdisciplinary studies. He collaborated on the project's conception and debriefing through the research process. DRB (PhD) is a professor and female researcher with experience in fall-prevention, community exercise programs, volunteering research and implementation science, with both qualitative and quantitative designs. She collaborated with other researchers on a national initiative to increase access to evidence- informed exercise programs to reduce falls among older adults. She supervised the study process from conceptualization to the writing of this manuscript. A reflexive journal was maintained throughout data collection and analysis to consider how the researcher’s background, assumptions and interest in fall prevention and

volunteer engagement may have shaped the interview process and interpretation of findings. This project is funded by MITACS and Research New Brunswick.

Data Collection

A semi-structured interview guide with open-ended questions was developed, guided by the constructs of the Volunteer Process Model to gain insights into how leaders perceived factors influencing their continued engagement in community-based fall prevention programs (see Additional file 1). Opportunities for additional discussion were provided.

Prior to the commencement of data collection, two pilot interviews were conducted by the first author with two independent participants who were no longer with the organization but were a volunteer leader in previous years, not part of the study. This was done to enhance credibility and refine the interview guide where needed. Each interview was estimated to last no longer than 60 minutes and was conducted virtually or in person, in a private office at the university. All interviews were conducted between January and February 2026, audio and video recorded on Microsoft Teams. These included interviews conducted virtually and in person. All recordings were transcribed verbatim. Field notes were taken after each interview to document the interview context. All participants were interviewed once, except one participant, due to an audio recording mishap. In this case, the interview was rescheduled to a later date agreed upon. Prompts and probes were used during the interviews to provoke more detailed responses from participants, where necessary. While COTU conducted all the interviews alone and transcription, coding was done concurrently with interviews by COTU and MFFD, with

the last two interviews yielding no new codes. On this basis, COTU and MFFD determined that data saturation was reached and thus terminated the interviews.

Data Analysis

Interviews were conducted with eleven participants between the ages of 55 and 77 years. Ten self-reported as female and one as male. Each interview lasted 24–55 minutes. The interviews yielded a rich understanding of the participants' perspectives and experiences. Interview transcripts were reviewed and analyzed using the six-phase process of the reflexive thematic analysis [39,40] data familiarization, generating codes, searching for themes, reviewing themes, defining and naming themes, and writing up. To effectively manage data, the Dedoose software v10.1.5 was used. After the transcripts were uploaded into Dedoose, COTU anonymized the data. Participants were assigned pseudonyms serially from P001 to P011. Then, COTU and MFFD independently and iteratively reviewed the transcripts, extracted and initially coded data inductively from the entire data set. After the first rounds of independent coding, both researchers met to compare codes and agreed on the final codes for excerpts. Wherever there was a disagreement on codes, a third independent researcher was invited in (DRB). Final codes were derived inductively from the data and are illustrated using participant excerpts (see Additional File 2).

The movement from codes to subthemes involved comparing related codes across participants and grouping codes that reflected similar meanings or experiences. For example, codes related to training, communication, administrative support, and resources were grouped under organizational and program support, while codes related to physical demands, time demands, competing activities, burden and administrative

tasks were grouped under role strain. Related subthemes were then identified through charting. According to Ritchie and Spencer[41], charting is an approach to synthesizing and interpreting qualitative data by sifting and sorting material according to key issues and themes. In this study, charting was used to organize the coded data into subthemes and to examine whether each subtheme functioned as an enabler, a challenge, or both. (see Table 3).

Although the initial plan was to present the findings as facilitators, barriers, and contextual factors, the analysis revealed that several factors were overlapping and context specific. Accordingly, the findings are presented as enablers, challenges, and both to long-term engagement of aging volunteer leaders in community-based fall-prevention exercise programs. This framing better captures the dynamic, multilevel, and non-uniform ways in which these factors shaped volunteers' experiences and engagement over time. The enablers, challenges, or both were organized into subthemes and then into broader themes informed by the constructs of the Volunteer Process Model. This approach aligns with the process adopted in this study, where coded data were organized into subthemes to support interpretation. It is important to note that participants' responses referred not only to their own experiences, but also to their perceptions of other volunteer leaders in the program. These accounts were not disregarded, as they provided insight into how participants made meaning of volunteer leader engagement within the bounded cases of fall-prevention programs. However, these comments were not treated as direct accounts of the experiences of non-participating leaders. Rather, during analysis, they were treated as part of participants'

perceptions of the volunteer leader role, the social and organizational context of the program, and the interpersonal dynamics within the case.

Table 3: Identified Subthemes for Long-term Engagement of Aging Volunteer Leaders

Enablers **28 codes**	**Challenges** **18 codes**	**Enablers + Challenges** **5 codes**
Organizational and Program Support	Role Strain	Personal Context and Background
Program's Perceived Benefits and Values	Program and Organizational Challenges	Role Meaning and Program Context
Social and Relational Influences	Role Readiness Challenges	
Personal Capacity and Background	Relational Challenges	
Motivation and Commitment		

These comments were coded, charted, and interpreted in relation to the patterns identified across the dataset. Such an approach is consistent with the interpretivist paradigm of the study and with Stake's case study methodology, which emphasizes understanding the particularity and complexity of a bounded case within its real-life context[36,37]. In this study, participants' perceptions of other leaders helped provide contextual understanding of the case while maintaining a distinction between participants' own experiences and their interpretations of the wider volunteer leader environment. The development of the subthemes and themes was informed by patterns identified within and across the cases and constructs of the Volunteer Process Model.

To ensure the trustworthiness of this qualitative research, Lincoln and Guba's (1986) criteria – credibility, transferability, dependability and confirmability – were applied [42]. Credibility was enhanced through a synthesized member checking after preliminary analysis. The interview participants were emailed a summary of the findings, including the leading factors influencing long-term engagement of volunteer leaders in fall prevention exercise programs. Also, they were invited to comment on whether these reflected their position, while reassuring them that the findings were presented in a summary form and that no individual participant would be identified in the final report. Dependability and confirmability were established thus: COTU analyzed the data and noted personal perceptions and subjectivity in a reflexive journal. COTU and MFFD reviewed the coded data. Next, final codes and themes were discussed and established by COTU and MFFD. DRB reviewed the codebook to enhance further credibility. After completing all interviews, the research team held four peer debriefings to discuss the study codes, subthemes, themes and interpretations while getting expert opinion from DRB. The COREQ checklist [43] was used to ensure the quality of reporting in this study (see Additional file 3). Transferability, though not the goal of qualitative research, was enhanced through detailed contextual descriptions that enable readers to judge the applicability of the findings to other contexts.

Results

This section presents the inductive codes and subthemes that describe the influences on the long-term engagement of volunteer leaders in community-based exercise programs. These influences are organized as enablers, challenges, and factors with both enabling and challenging effects.

Enablers to long-term engagement of volunteer leaders

Inductive codes related to organizational support, leaders' training, leaders' appreciation/recognition, resources, and program changes were grouped under organizational and program support. Other codes in this group having positive connotations include burden, concerns with program, and organizational instability. Codes related to program value, self-benefit, mutual benefit, community benefit, and helping others stay active were grouped under the subtheme of program's perceived benefits and value. This subtheme captures the personal and community meaning leaders attached to their role. Codes related to peer support, community support, relationships with class participants, and inspiration from others were grouped under social and relational influences, reflecting how relationships within and around the program encouraged continued engagement. Personal factors, including active lifestyle, personality, previous volunteering, family health history, professional background, knowledge/confidence, leader's availability, and leaders' health, were grouped under personal capacity and background. Finally, codes related to intention or reason to continue, expectations, leader's commitment/emotional attachment were grouped under motivation and commitment. These code - subtheme arrangements are illustrated in table 3 and additional file 2. Together, these subthemes explain how individual,

relational, organizational, and program-level factors enabled long-term engagement among volunteer leaders. Each subtheme is further explained below, with supporting participant accounts illustrating how these enablers influenced continued involvement.

Organizational and Program Support

Participants recognized organizational support as a major factor in their long-term engagement. This support was described through reduced administrative responsibilities, responsiveness to leaders and access to resources within the leadership role. For example, one participant said,

> *I feel like it's been a positive experience for me. I like the fact that I don't have to register people and that there's some promotional materials that go out without me having to, you know, the organization develops all of those things and creates the posts. I can just share something from Facebook, share it in different groups in [Location]. And that's how the word gets out here. (P007)*

In this context, organizational support reduced the administrative responsibilities placed on volunteer leaders and allowed them to focus on delivering the program.

Training and continued empowerment from the organization were also recognized as important factors that helped keep leaders engaged over time (P001, P003, P008, P009). One participant described the initial training as “a very good course” that was “very informative” and included an opportunity to practise a routine in front of the class, which helped prepare them to lead (P008). Participants also noted that the resources provided by the organization were helpful in keeping their classes going. For instance, one participant reported that having new exercises was helpful because leaders

could become bored with what they were doing (P003). Together, these accounts show that both initial training and ongoing resources were important forms of organizational and program support that influenced long-term engagement. Additionally, participants acknowledged that the autonomy they had as leaders made them feel trusted by the organization. One participant described, *"They gave me like control, a little bit of control over the team" (P007).* This showed that the autonomy participants experienced within their leadership role was another factor shaping their long-term engagement.

Some participants reported that the organization's perceived credibility enabled them to stay engaged. They further reported that their perception of the program organizers motivated them and contributed to the meaning they attached to their role. Participant 007 shared, *"The research part I admire, and I'm so happy about because as I tell the people in our group, we need to go with what research is showing us. That's why."* Participants also acknowledged changes in the program as it progressed. For example, one participant described how the program "went provincial," which allowed her to continue as a leader after moving and retiring (P005). In this context, program expansion supported long-term engagement by creating an opportunity for continued involvement in a new location.

Additionally, participants reported making efforts to recruit other volunteers to become leaders in the program. This behaviour shows that they did not engage only as class leaders but also acted as informal advocates for sustaining the program. This was reflected in one participant's statement, *"And then I coerced my younger sister, who loves to exercise as well, and she just recently retired, so now she's a leader as well. She took the course" (P008).*

Participants also described the appreciation they received from class members and the organization as affirming and heart-warming. One participant acknowledged the organization's appreciation efforts and the kind gestures from class members, but explained that these were not what she needed most. Rather, she valued *"the everyday going and seeing them and laughing with them and enjoying their company"* (P010). P008 also stated that *"Yes, we were[appreciated], our stepping up program was nominated and we won the Manitoba Health and Recreation Award in 2024"*.

Some experiences that initially appeared challenging but did not necessarily weaken their engagement. For example, some acknowledged engagement with the program as a challenge, yet admitted enjoying the challenge. One participant shared, *"I'm tired sometimes, but when I go, I'm very energized. So yeah, my challenges have been few"(P003).* Others acknowledged instability in the organization but described improvements simultaneously. One participant explained that the program was "smoother" than when they first started, with more continuity and fewer problems related to registration each September (P004). Similarly, when participants raised concerns with the program, these were often discussed alongside the additional benefits it offered. For P005, one of these benefits was social connection: *"The one thing that we don't talk about a lot is how important that social connection, just coming together as a group, is. Although we know it is, we don't really talk about a lot"*.

Program's Perceived Benefits and Values

Participants perceived the program as benefiting themselves, their participants, and the community, and these perceived benefits appeared to enable continued involvement. Participant 009 shared, *"The program has been extremely beneficial. It has*

been a growth experience. It has provided me with a sense of purpose. It's extremely rewarding.". Participants also reported satisfaction from helping others stay active and improve their health (e.g., improved balance, reduced falls). One participant described class members asking them not to stop the classes because they did not know what they would do without them, which the participant described as "great moments" and "very positive" (P007). Another participant explained that their motivation was initially more personal and focused on looking after themselves, but over time became "more for others" (P006). These accounts suggest that leaders' continued engagement was reinforced by both personal benefit and the satisfaction derived from helping others stay active and improve their health.

The value leaders associated with the program, as a difference-maker and a popular program, also appeared to strengthen their sense of purpose in the role and enabled them to stay engaged (P001, P010). These responses suggest that leaders were encouraged to remain engaged when they perceived the program as meaningful, visible and valued within the community, including by health professionals. This is reflected in what participant 001 shared: *"I mean, we do something we are involved in, something that is meaningful for the community and meaningful for the people who are there, and best of all, we see the result in no time."* Similarly, participant 010 shared, *"It's such a popular program. And all the doctors in the area here, they all recommend it"*.

Social and Relational Influences

Peer support, particularly from other volunteer leaders, was reported as an important enabler of long-term engagement. This support was described as practical and reciprocal. One participant explained that when a leader could not attend class, another

leader would step in, and "the other person will take care" (P009). In this way, peer support helped leaders continue in their role by making class delivery a shared responsibility. Participants also described the inspiration they derived from their class group, the relationships they had built with them, and the support they received from the community as reasons to stay involved as leaders. For P005, class members' dedication was a source of encouragement: *"I have 4 80-year-olds in my class. You would not believe their balance. One of the ladies is probably the best one in the class. She's 81. I cannot believe it"*. Such accounts showed that class members' dedication encouraged leaders to continue over time.

In addition, participants described the program as extending beyond exercise delivery into a source of social connection and community belonging. One participant explained that the program had "grown beyond just a balance-and-exercise group" and had become "a really big part of our community" (P010). Another participant described having a core group of class members who had been with them for a long time within a small community (P004). These accounts show that peer support, class relationships, and community connection were important enablers of long-term engagement.

Personal Capacity and Background

Participants described how their personalities made it easier to stay engaged in leadership roles. For example, P003 described themselves as "a social butterfly", reflecting how sociability made the leadership role feel more natural. Past volunteering and previous leadership experience were also described as enablers to staying involved. P008 reported, *"I already led in the Stepping Up program before becoming involved in the current program"*. For some participants, their professional background also shaped

their engagement. For example, P001 described working in international relations with different countries and different types of people. These prior experiences were described in relation to participants' comfort and ability to work with groups of people. Participants also described the knowledge and confidence they gained through being leaders. One participant explained that after leading several classes, her voice "wasn't quavering anymore" and described this as a "sense of accomplishment" (P004). This reflected how confidence developed through the leadership role itself.

Some participants also reported that their already active lifestyle and staying mobile and healthy supported their continued involvement. P005 described; *"I know how important physical activity. I want to be mobile as long as I can. I don't want anyone looking after me, not that I want them to"*. Another participant described being "passionate about fitness" (P007). These accounts show that participants' personal health values and interest in fitness aligned with the goals of the program and supported their long-term engagement.

Family health history and the convenience of the route from work to class were reported as factors in participants' engagement.. While P005 described their mother having a stroke at 55 as "another factor" that keeps them engaged in the long term (P005). P007 described *"I like that I can just go right straight from work to that community center, teach for my hour, come home, and then I'm home for the night. That's a reason. I mean, that's one of the reasons that I do stay with it".* These accounts show that both personal health experiences and practical convenience supported continued engagement.

Motivation and Commitment

Participants recounted their expectations of being part of the program and their intention to continue as leaders. One participant described continued participation because they "wanted something to do" (P005). For others, continuing as a leader was linked to their ability to remain effective in the role. P006 stated that they intended to continue "as long as I can be effective" (P006). This showed that intention to continue was connected not only to willingness, but also to participants' perception of their capacity to keep contributing meaningfully.

For some participants, motivation was sustained by the class members and by the importance they attached to the program (P005, P001, P009, P010). One volunteer leader described the class members as the main source of motivation to their long-term engagement, stating, *"Just the participants. That's it, that's all (They keep me motivated)"* (P002). Another participant described loving the program, wanting to stay active, and wanting to help peers in the community stay active. This participant also emphasized the importance of challenging balance, being a good example, and seeing themselves continuing as a leader "for a very long time" (P007). These accounts show that continued engagement was supported by personal enjoyment, commitment to helping others, and the desire to model the benefits of the program.

Taken together, these findings show that long-term engagement was supported not only by organizational structures but also by participants' personal abilities, prior experiences, everyday circumstances, and the meaningful value they attached to their roles.

Challenges to long-term engagement of volunteer leaders

Inductive codes related to burden, competing activities, leaders' health, family history, and intention to discontinue were grouped under the subtheme of role strain. This subtheme reflects the challenges attached to executing the role of volunteer leader. Codes related to concerns with the program, organizational instability, changes in the program, lack of familiarity with the program, and lack of organizational support were grouped under program and organizational challenges. This subtheme reflects challenges linked to the program and organization that influenced leaders' continued engagement in their roles. Inductive codes related to anxiety to teach, leaders' training, challenges in knowledge, confidence, expectations, and available resources were grouped under role-readiness challenges. Finally, codes related to challenges associated with peer support, relationships with participants, and recruiting other volunteers were grouped under social-relational challenges. This subtheme reflects the interpersonal and relational challenges that shaped volunteer leaders' experiences and continued engagement.

Role Strain

Burden was reported as a challenge associated with long-term engagement. Participants described burden in relation to increasing class size, administrative responsibilities, and participant attendance. One participant noted that as classes became "bigger, bigger, bigger," they were no longer manageable (P001). Another participant described *" It's fallen to the leaders to take attendance, and a lot of evening stuff gets dumped on them. That is my biggest frustration with the participants not showing up."*

(P011). These accounts reflected the additional responsibilities that volunteer leaders experienced in delivering the program.

Participants also described competing activities, along with the health of leaders and their family members, as challenges to staying engaged long-term. For example, one participant shared, *"My daughter needs me because she can't drive"* (P005). The same participant also described concerns about becoming physically unable to continue leading because of illness or injury (P005). Similarly, another participant explained that "life gets in the way," including situations where leaders or their spouses become sick, or where leaders begin to experience pain (P004). These accounts showed that long-term engagement was shaped not only by the demands of the volunteer role but also by everyday responsibilities, health concerns, and life circumstances.

For some participants, these pressures were connected to whether they would continue in the role. One participant stated, *"I've decided that, you know, if it's not fun, then it's probably not something I should be doing right now"* (P011). This reflected how role burden, when combined with reduced enjoyment, could contribute to thoughts of discontinuing engagement.

Program and Organizational Challenges

Some participants reported concerns about the program and organizational instability as challenges to their sustained engagement as volunteer leaders. These concerns were described in relation to administrative turnover, program reputation, limited flexibility in program delivery, reduced communication, and lack of support for some leaders. One participant described "so much turnover" among people looking after

the administration program and reported that this created “a multitude of problems,” which “hurt the reputation of the program” (P002). This reflected how changes in administration were experienced as a challenge to long-term engagement of the leaders. Participants also raised concerns about aspects of program delivery. One participant reported, *“I think that giving alternatives, like instead of just saying no to an exercise, like there aren't enough alternatives given. It's very strict. I'm saying modifications. That's what I'm saying”*(P006). This reflected concerns about flexibility within the program, particularly when leaders felt more options were needed to support delivery.

Lack of organizational support and changes in communication were also reported as challenges to staying engaged. P011 described how some new leaders did not feel supported and were unsure where to turn. Although this example referred to newer leaders, it was raised by a long-term leader as a concern about weakening organizational support. The participant also reported that one new leader repeatedly sought guidance from program headquarters on where she could serve but did not receive a clear response (P011). The same participant noted that contact between administration and instructors “lessened over time” as the program became bigger (P011). While program expansion was viewed positively, participants also described feeling more isolated as communication and support between administration and leaders weakened over time.

Additionally, some participants reported that limited familiarity with the program at the beginning influenced their ongoing engagement as volunteer leaders. One participant explained, *“I knew nothing about this program at the time. I'd never taken a*

class" (P009). This indicates that limited prior exposure to the program could create uncertainty at the beginning of the leadership role.

Role-Readiness Challenges

Participants reported anxiety about teaching a group class and insufficient knowledge and confidence as challenges to continued engagement. One participant described not knowing whether she would be capable of leading a class because "there was so much to remember" (P010). Another participant noted that without some fitness background, leaders may not know how to implement what they learned or may lack confidence in doing so (P006). These accounts reflected concerns about feeling prepared and confident to lead the program that could influence their long-term engagement.

Some participants expressed displeasure with aspects of the training they received, with one stating, *"For the training, the girl who came from [former certifying body], did not know the programme" (P006).* Others described unmet expectations after training, including an expectation to be mentored or followed up in some way (P009). These accounts reflected concerns about the transition from training to practice, particularly when leaders expected additional support after completing the course. Additionally, some participants expressed concern about the insufficient resources provided to stay engaged as a leader, with one noting, *"I don't have a printer, so every time we get our participant list, I have to make my own"* (P005). Together, these accounts showed that role-readiness challenges were related to training, mentorship, confidence, and access to resources needed to support leaders in delivering the program over time.

Relational Challenges

Participants described difficulties with recruitment of other volunteers, limited peer support and challenging participant relationships as social and relational challenges to continued engagement. Even though these were the least reported challenges, they shared the challenge of recruiting new volunteers to sustain engagement, as reflected in one participant's statement: *"We are looking at trying to get volunteers, new volunteers, new leaders, and that seems to be a problem nowadays" (P008).* This relates to long-term engagement because limited recruitment reduced the pool of leaders available to share responsibilities and support class delivery, which could place more pressure on existing leaders and affect their ability to remain involved over time.

Some participants also reported limited peer support or mentorship as a challenge. One participant described wanting to know who else had taken the program but receiving no feedback (P006). Another participant explained that although one class member had become a leader and co-taught with her, the new leader did not want to teach independently (P010). These accounts reflected challenges related to peer support, mentorship, and shared leadership. One participant also described challenges in relationships with some class members, noting that there were a few "interesting people" in the class, but that they were "dealing with that" (P004). Although this was not widely reported, it showed that participant relationships could occasionally add to the relational demands experienced by leaders.

Factors acting as both enablers and challenges

In addition to factors described primarily as enablers or challengers, some factors were more context-dependent and appeared to function differently depending on participants' circumstances and experience. Inductive codes that reflected enabling and challenging factors were organized into two subthemes: personal context and background, and role meaning and program context, described below.

Personal Context and Background

Life stage, leaders' health and past volunteering were described in ways that functioned as both enablers and challenges to long-term engagement. For some participants, life stage and prior volunteering created flexibility, familiarity, and confidence in the leadership role. For others, these same factors shaped competing demands, limited prior experience, or expectations that could make sustained engagement more difficult. Additionally, participants reported their retirement status or life stage in ways that reflected both enabling and challenging influences on engagement. One participant said, *"I am retired. I retired in 2020"* (P005), and another participant said, *"I am not retired yet"* (P007). These accounts showed that life stage did not function in one fixed way. For some participants, retirement created flexibility to engage in the program, while for others, competing activities and responsibilities continued to shape their involvement. For participants who were still working, practical factors such as proximity between work and the program location also supported continued engagement. Leader health also appeared to shape how some participants thought about their future engagement. One participant said, *"I'm pretty sure I'm going to be there for another three years. And then I don't know. If I could do it, I will. If my*

health lets me" (P009). This suggests that although some leaders intended to continue, their ability to remain engaged was also connected to their health and physical ability over time.

Past volunteering experience was also reported in different ways. Some participants described previous volunteering or leadership experience as part of their background, while others described having limited prior volunteering experience. One participant reported being a member of the [location] Lioness, where she helped with activities such as catering meals and weddings to raise money, but also noted that she "hadn't done a lot of volunteering" (P004). In this context, past volunteering reflected both familiarity with community involvement and variation in how prepared participants felt for this volunteer leader role.

Role Meaning and Program Context

Participants reported program value and leadership commitment in ways that functioned as both enablers and challenges to long-term engagement. When describing program value, participants often referred to what they perceived the program should be doing but was not, or what the program had previously been doing but had stopped. One participant referred to the assessment component, noting that participants were previously assessed before entering the program and that these assessments were like those she had used in the fitness industry (P002). Another participant described arranging additional activities between classes, including having someone come in to speak to participants (P010). These accounts showed that participants valued the program and wanted it to offer meaningful support beyond the class itself. At the same

time, perceived gaps or discontinued practices were described as concerns when the program did not fully align with leaders' expectations.

Program changes and expectations in ways that reflected both enabling and challenging influences on long-term engagement. P004 described a shift in the program focus over time, stating that it had moved "more and more" from exercise toward balance. This account shows that leaders noticed the changes in the direction of the program but were still uncertain about how they felt about it. The effect of the program change was more directly reflected by P011, who stated, *"Well, my expectations didn't change, but the programme certainly changed"* (P011). This report suggests that program changes could affect engagement when there is a mismatch between leaders' expectations and the direction of the program.

Discussion

The discussion of this article is presented in relation to the constructs of the Volunteer Process Model. In this study, the codes and subthemes were developed inductively from the data, while the overarching themes were deductively organized using the phases and constructs of the Volunteer Process Model. Therefore, the model serves as the theoretical framework for interpreting the findings, with attention to the antecedents, experiences, and consequences that shaped long-term volunteer engagement.

This study aimed to identify factors related to the long-term engagement of aging volunteer leaders in fall-prevention community exercise programs. Our study shows that long-term engagement among volunteer leaders is mainly supported by reporting more enabling components versus challenges. When organizations make the role easier by providing strong support, training, and resources, allowing leaders to focus on what they enjoy most. Leaders also stay involved because they feel the program is meaningful, gives them a sense of purpose, and helps others improve their health and well-being. Positive relationships—with participants, other leaders, and the community—play a major role, as feeling connected and appreciated makes the experience more enjoyable and motivating. Personal factors, such as experience, confidence, interest in fitness, and convenient life circumstances, also help leaders continue over time. Overall, leaders remain engaged when they feel supported, find personal and social value in their role, and are motivated by both enjoyment and a commitment to helping others.

Antecedents to Long- term Engagement in Community Fall Prevention Programs

Within the Volunteer Process Model, the antecedent stage reflects personal, circumstantial and motivational characteristics of individuals that foretell who is likely to become a volunteer [32]. In this study, participants retrospectively described antecedents to long-term engagement through volunteer personality, motivations, constraints, life norms, sociodemographic factors, and perceived role identity, similar to the antecedent characteristics Omoto and Snyder conceptualized in their volunteering process in their research among AIDS volunteers [29,32] . Moreover, Davis et al. similarly found that antecedent factors shaped volunteers' subjective experience and satisfaction during the first year of volunteering, in their research on community volunteers from different organizations [44]. This present study further added how these themes shaped long-term volunteer engagement in fall prevention programs.

Volunteer personality, motivation and perceived role identity appeared closely connected in shaping participants' readiness for the leadership role, which has been reported as an important influence on volunteering and sustained engagement in volunteer research in physical activity programs [18,45]. This is valuable because volunteer role identity has been shown to predict volunteer initiation and engagement[46,47]. Also, motivation as a finding is consistent with the functional approach to volunteer motivation, which argues that volunteering serves multiple functions, including expressing values, understanding, enhancing, pursuing a career, socializing, and protecting oneself [27,48]. However, most of this evidence comes from general volunteer populations rather than fall-prevention exercise programs. The findings in this study expand this motivational explanation by showing that motivation alone may not be

sufficient for long-term engagement. Rather, motivation appeared to dynamically intertwine with volunteer personality, perceived role identity, and other factors during the experience stage. Motivation was a cross-cutting factor that influenced future volunteering even in the consequence stage of the volunteer journey. Sustained engagement, therefore, depended not only on individual attributes but also on manageable responsibilities, sufficient organizational support, and continued evidence that the program was meaningful and valuable.

Similarly, sociodemographic factors and life norms shaped engagement in multidirectional ways. Retirement or semi-retirement created time and flexibility for some participants, consistent with evidence that older adults often contribute substantial volunteer hours[49,50]. Later life also introduced constraints consistent with the life-course perspective on volunteering that emphasizes available resources and life circumstances as integral to volunteer sustainment. This has also been reflected in research on adults aged 65 years and older who volunteered in community sport organizations[51,52]. Also, because gender and age were not described by participants as major influences on continued involvement, these findings should be interpreted cautiously, given previous studies identifying age, gender, education, and employment status as predictors of volunteering in various sectors[53,54].

Experiences to Long-Term Engagement in Community Fall-Prevention Programs

Within the Volunteer Process Model, the experience stage reflects the concerns of the ongoing experiences of volunteers through their volunteering service[29,32]. In this

study, the experience stage included themes on interpersonal relationship dynamics, behavioural patterns, social support, recognition, role strain and autonomy.

Interpersonal relationship dynamics and social support were central to participants' experience and continued engagement in this study. This included support from the organization, other volunteer leaders and the participants. These findings align with previous research from showing that social and organizational support, as well as quality of relationships within the volunteer setting, are important predictors of engagement[15,55]. However, much of this literature examines volunteering more broadly, while the present study shows how support and relationships operate in the context of fall prevention exercise programs. Furthermore, the findings reveal that these relational experiences influenced participation, continued engagement, satisfaction and the intention to continue. Closely related to this, recognition also contributed to the volunteer experience. However, participants in this study appeared to appreciate relational forms of recognition over material forms, suggesting that recognition in volunteer-led fall prevention exercise programs may be most meaningful when it is connected to perceived impact rather than symbolic appreciation alone.

At the same time, the experience stage revealed important tensions. Role strain emerged following the burden associated with the role, competing activities and availability. While this is consistent with existing research that suggests that role strain can arise from continued engagement in the volunteer role[56], most participants in this study did not describe strain as a direct result of long-term engagement itself. Rather, strain appeared to arise from other factors, such as competing responsibilities. Similarly, while autonomy is perceived as associated with prosocial engagement and lower

volunteer turnover, from general volunteering studies[28,57], it could also increase the burden associated with the role, particularly when organizational support is perceived as insufficient. Furthermore, changes in behaviour during the experience stage were mainly reflected in the perceived benefits of the program for the leaders and their participants.

Taken together, these findings suggest that the experience was important for long-term engagement, where personality, initial motivation, and role identity were tested in the real-life context of the volunteer-leader role. The evolving nature of the volunteer process is key to understanding engagement. For this study's participants, this dynamism was further evident in the consequences stage, where the outcomes of volunteering influenced the intention to continue or discontinue engagement.

Consequences to Long-Term Engagement in Community Fall-Prevention Programs

Within the Volunteer Process Model, the consequence stages are reflected through changes in attitude, knowledge, behaviour, satisfaction, intention to continue or discontinue and volunteering benefits. In this study, participants' accounts suggested that long-term engagement in community fall-prevention programs was reinforced when volunteering produced personal and relational benefits, including increased confidence, knowledge, satisfaction, and a sense of purpose. This aligns with broader volunteering literature, suggesting that volunteering can lead to personal development[18,58,59].

However, satisfaction, increased knowledge, and changes in attitude and behaviour are of particular importance because they appear to connect volunteers' experience to their intention to continue. Leaders were more likely to describe an

intention to stay engaged when they perceived the program as beneficial to themselves and the participants, and meaningful. This is consistent with existing research that links positive volunteer satisfaction with intention to continue[32,60]. However, in this study, satisfaction was not only an outcome of organizational support but was generated through perceived impact. This perceived impact may be especially important in fall-prevention exercise programs. The volunteer leaders appeared satisfied when they could see that leading the program improved balance in the participants. In this way, perceived program value became a consequence of volunteering and also fed back into motivation and continued engagement. Additionally, this suggests that in volunteer-led fall-prevention programs, perceived participant benefit may be an important mechanism through which satisfaction supports long-term engagement.

At the same time, the consequence stage included an intention to discontinue[32]. Such intention appeared to be linked to reports of organizational instability, limited support, concerns about program changes, and competing activities. These findings highlight that volunteer experiences were not always positive. In fall prevention exercise programs, the same role that generated meaning, social connection, and purpose could also produce burden, particularly when leaders do not feel supported. Therefore, the consequence stage in this study suggests that long-term engagement is sustained when volunteering remains beneficial, meaningful, and feasible.

Overall, these findings highlight the iterative and dynamic model of the Volunteer Process Model. It suggests that the model's stages – antecedents, experience, and consequence – are not strictly sequential or linear but continue to interact dynamically throughout the volunteer journey. The findings highlight factors specific to

aging volunteers, including the ability to safely participate in and lead an exercise-based fall prevention program. Importantly, the reasons for sustained engagement appeared to evolve over time. Thus, long-term engagement in community fall-prevention exercise programs should be understood as an evolving process in which factors continue to interact to influence engagement.

Limitations, Strengths and Future Research

This study has some limitations. The participants were recruited from two structured community fall-prevention programs. Therefore, the findings should be interpreted within the context of formal programs with established training, administrative processes, and organizational support. Experiences may differ in less formal community-based programs or programs with different organizational resources. In addition, because the study focused on leaders who had remained with the programs for no less than two years, the perspectives of those who discontinued engagement were not directly captured. This may have resulted in the more positive account of long-term engagement identified in the present study.

Despite these limitations, a strength of this study is that it investigated volunteering among leaders who had been with the programs over time. This allowed the participants to reflect and express their experiences of long-term engagement. This study contributes to the literature by demonstrating that, within the Volunteer Process Model, factors that influence engagement are not linear or fixed. Rather, these factors are dependent on each other and on the perception of meaning exhibited by leaders in the fall-prevention program. This suggests that organizations should not focus only on recruiting motivated volunteers but should also develop strategies that strengthen the

identified enablers, sustain volunteers' engagement in fall-prevention programs, and reduce perceived challenges.

Future research should use the identified factors to develop strategies to test if it is possible to retain volunteer leaders in fall prevention programs engaged for a long time when these strategies are applied. Future studies should also include a more diverse group of aging volunteer leaders, particularly in relation to gender and program setting, to understand whether the factors identified in this study are similar across different groups. It would also be important to examine whether these factors can be applied to aging peer leaders in other settings beyond fall-prevention programs.

Conclusion

This study suggests that long-term engagement among aging volunteer leaders is not sustained by a single factor but by a combination of individual, relational, organizational, and program influences. Factors influencing long-term volunteer engagement are dynamic and influenced by each other, interaction with others and the setting.

These findings further suggest that sustained engagement in community fall-prevention exercise programs is not simply a matter of volunteer motivation, but a continuing negotiation between volunteers' personal circumstances, the meaning they attach to their role, the benefits they get, the support they receive, and the perceived value of the program. Some factors that initially supported engagement, such as belief in the value of the program, could also become a source of pressure when volunteers perceived limited organizational support, gaps in program delivery, or reduced satisfaction.

Overall, these findings extend the application of the Volunteer Process Model by showing that long-term engagement was shaped by the interaction between why participants became involved, what they experienced in the role, and what they gained or struggled with over time. Although Omoto and Snyder present the Volunteer Process Model as a linear and sequential process moving from antecedents to experiences and consequences, this study showed a more iterative pattern. This suggests that in the context of fall-prevention exercise programs, the antecedent stage was not a fixed entry point, nor was the consequence stage a final endpoint. Instead, long-term engagement

among aging volunteer leaders may be better understood as an iterative process in which the stages of the model continue to interact to shape continued engagement.

The findings from this study have practical implications for organizations that recruit, train, and support aging volunteer leaders in community-based exercise programs. Practical information about volunteer roles and expectations can be provided at the point of recruitment. Structured initial training, along with ongoing educational opportunities, can help volunteers feel prepared and supported in their roles. Routine communication, clear staff support, and volunteer involvement in decisions affecting their roles may further enhance the volunteer experience. Ensuring access to adequate resources and timely assistance is also important. Opportunities for peer mentoring and social connection can foster a sense of community among volunteers. Organizations can support volunteers by allowing appropriate autonomy in carrying out their roles while monitoring physical, emotional, and administrative workload, as well as class size. Access to substitute leaders and opportunities for breaks when needed may help reduce burden and sustain participation. Finally, recognizing volunteers' contributions and communicating the impact of their efforts can reinforce engagement and satisfaction.

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Chapter 4: Final Discussion

This study aimed to identify factors that influence the long-term engagement of aging volunteer leaders in community-based fall-prevention exercise programs. This gap was identified through a review of volunteering research in community-based fall-prevention programs, where much of the existing literature focuses on recruitment, retention, or program outcomes, with less attention to engagement as an experiential and dynamic process across the volunteer journey. Given that falls remain a major public health concern among aging adults (World Health Organization, 2008, 2021), and that many community-based exercise programs depend on volunteers for delivery and sustainability programs (Lim et al., 2021; Washburn et al., 2020) understanding what supports or challenges long-term volunteer leader engagement is important.

In this study, the Volunteer Process Model informed the development of the interview questions and supported the interpretation of the findings (Omoto & Synder, 2002; Snyder & Omoto, 2008). Guided by this model, interviews with long-term volunteer leaders explored not only what made them stay engaged for more than two years, but also how their motivations, role experiences, interrelationships, perceived benefits, constraints, and program context shaped continued engagement over time. The findings were organized into enablers, challenges, and factors that functioned as both, showing the iterative nature of long-term engagement.

The findings from this study were interpreted in relation to the constructs and phases of the Volunteer Process Model: antecedents, experiences, and consequences. In the antecedent phase, key findings were reflected through volunteer personality, motivations, life norms, constraints, and perceived role identity. Findings aligned with

the experience stage included interpersonal relationship dynamics, behavioural patterns, social support, recognition, role strain, and autonomy. Findings aligned with the consequence stage included changes in attitude, knowledge, behaviour, satisfaction, intention to continue or discontinue, and perceived volunteering benefits. However, the findings also showed that these phases were not separate and sequential. Rather, factors across the three phases interacted iteratively over time, shaping whether volunteer leaders continued to experience the role as meaningful, supported, and manageable.

These results can be applied by organizations delivering fall-prevention exercise programs for aging adults. Rather than focusing only on recruiting volunteers, organizations should use these factors to develop strategies that support long-term engagement. Such strategies may include strengthening training and communication, providing peer support, recognizing volunteer contributions, reducing role strain, clarifying role expectations, and supporting appropriate autonomy. Applying these strategies may help organizations retain trained volunteer leaders longer, reduce the repeated cost and effort of training new volunteers, and improve continuity in community-based fall-prevention exercise programs.

The interdisciplinary nature of this study increases its value by drawing on public health, kinesiology, and psychology. Public health frames falls as a population-level concern that requires long-lasting, community-based prevention strategies. Exercise science highlights the importance of structured physical activity for balance, strength, and healthy aging. Psychology, through the lens of the Volunteer Process Model, provides understanding of the motivations, role identity, satisfaction, perceived benefits, organizational influences, social relationships, and challenges that influence

volunteer leaders' long-term engagement. Together, these perspectives show that sustaining fall-prevention exercise programs requires attention not only to the exercises being delivered, but also to the volunteer leaders whose engagement makes program delivery possible.

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Appendix A: Interview Guide

Semi-structured Interview Guide with Volunteer Process Model Constructs

Can you tell me a bit about yourself, including your age, gender, and whether you are retired? (Antecedent – personality)

1) What made you decide to become a volunteer leader in this program? (Antecedents – Motivation)

2) When you first joined, what did you expect volunteering would be like? How have those expectations changed? (Antecedents – Initial Expectations)

3) How did your background, interests, or past experiences influence your choice to volunteer as a leader? (Antecedents – Personality, Life Circumstance)

4) How was your training or orientation when you first joined? Did it affect your decision to volunteer? (Antecedents – Perceived Role Identity)

5) How would you describe your experience in Zoomers in Balance/Stepping Up with Confidence from your training until now? (Experience – Organizational Integration) (consider comparison)

6) Do you feel supported by the program coordinators, other volunteer leaders, or the participants? In what ways? (Experience – Satisfaction)

7) What challenges have you faced as a volunteer leader, and how have these challenges affected you or your confidence? (Experience – Role Strain, Stigma)

8) What are some of the most meaningful or rewarding moments you've had while volunteering? (Experience – Satisfaction, Recognition)

9) Have there been times when you thought about stopping volunteering? Could you tell me more about what happened during those times? (Experience – Role Strain, Stigma)

10) How has being a volunteer leader helped you personally or socially? (Consequences – Benefits)

11) What keeps you motivated to continue volunteering after all these years? Have your reasons changed? (Consequences – Knowledge and Attitude Change)

12) From your point of view, what parts of the program help keep volunteer leaders involved for a long time? (Something the program does or don't do?) (Consequences – Intention to Continue or Discontinue, Benefits)

13) Do you see yourself continuing as a volunteer leader in the future? Why or why not? (Consequence – Intention to continue or Discontinue)

Is there anything else about your experience that you think is important to share—especially something that helps explain what keeps volunteer leaders engaged for a long time?

Appendix B: Inductive Codes Influencing Long-Term Engagement

Enablers	Organizational Support Leaders Training Leaders' Appreciation/ Recognition Resources Organizational Credibility Program Changes Recruit other volunteers Burden (in a positive sense) Concerns with the program Organizational Instability	Benefits of the Program Program Value Self-Benefit Mutual Benefit Community Benefit Help others stay active	Peer Support Community Support Relationship with Participants Inspiration from others	Active Lifestyle Personality Past Volunteering Family Health History Professional Background Knowledge/Confidence Leaders' availability Leaders Health	Reason/Intention to continue Expectation Leaders' commitment/ Emotional Attachment
Challenges	Burden Competing Activities Leaders Health Family Health History Reasons/Intention to Discontinue	Concerns with the program Organizational Instability Program Changes Lack of Familiarity with Program Organizational Support	Anxiety to teach Leaders' Training Knowledge/Confidence Expectations Resources		Peer Support Relationship with participants Recruit other volunteers

Both	Life Stage Past Volunteering	Program Value Leaders' Commitment/Emotional Attachment Program Changes Expectations

Appendix C: COREQ Checklist

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
Personal characteristics			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	29
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	29
Occupation	3	What was their occupation at the time of the study?	29
Gender	4	Was the researcher male or female?	29
Experience and training	5	What experience or training did the researcher have?	29
Relationship with participants			
Relationship established	6	Was a relationship established prior to study commencement?	29
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	29
Interviewer characteristics	8	What characteristics were reported about the inter viewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	29
Domain 2: Study design			
Theoretical framework			

Methodological Orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	27
Participant selection			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	29
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	29
Sample size	12	How many participants were in the study?	31
Non-participation	13	How many people refused to participate or dropped out? Reasons?	31
Setting			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	31
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	31
Description of sample	16	What are the important characteristics of the sample? e.g. demographic, data, date	31
Data collection			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	31
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	31
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	31
Field notes	20	Were field notes made during and/or after the inter view or focus group?	31

Duration	21	What was the duration of the inter views or focus group?	31
Data saturation	22	Was data saturation discussed?	31
Transcripts returned	23	Were transcripts returned to participants for comment and/or correction?	34
Domain 3: analysis and findings			
Data analysis			
Number of data coders	24	How many data coders coded the data?	31
Description of the coding tree	25	Did authors provide a description of the coding tree?	31
Derivation of themes	26	Were themes identified in advance or derived from the data?	32
Software	27	What software, if applicable, was used to manage the data?	31
Participant checking	28	Did participants provide feedback on the findings?	34
Reporting			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	36
Data and findings consistent	30	Was there consistency between the data presented and the findings?	36
Clarity of major themes	31	Were major themes clearly presented in the findings?	49
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	35

Curriculum Vitae

Candidate's Full Name:

Chinasa Obiageri Trinitta Ugwuegbulem

Universities attended (with dates and degrees obtained):

Doctor of Medicine, Crimea State Medical University, 2013

Master of Science in Public Health, University of South Wales, 2022

Publications:

Understanding the acceptability of the StandingTall app among Canadians aged 50+ living in the Community: A Mixed Method Study. https://formative.jmir.org/2026/1/e95812

Assessing the Acceptability of the Standing Tall App According to Physical Activity and Technology Use for Aging Canadians. In the works

Prevalence and perception of pre-morbid lifestyle-related risk factors among covid-19 survivors in Lagos State and Abuja capital city of Nigeria https://link.springer.com/article/10.1186/s12889-024-19502-w

Changing global ageing demography and implications for future disease outbreaks in Africa: A descriptive review. In Review

Culturally Tailored Lifestyle Intervention Improves Glycaemic Control in a

Newly Diagnosed Untreated Type 2 Diabetic Patient: A Case Report. https://ijdrp.org/index.php/ijdrp/article/view/465

Conference Presentations:

Ugwuegbulem C.T. et al. (2026). Identifying factors related to long-term engagement of aging volunteer leaders in fall prevention exercise programs: a qualitative study. Abstract submitted and to be presented at the 2026 International Society for Physical Activity and Health Congress, Mexico.

Ugwuegbulem C.T. et al. (2026). Identifying barriers and facilitators related to long-term engagement of aging volunteer leaders in fall prevention exercise programs: a qualitative study. Abstract submitted and presented at Atlantic Provinces Exercise Scientists and Socioculturists 2026, Halifax

Ugwuegbulem C.T. et al. (2025). Characteristics Associated with Older Adults′ Acceptability of The Standing Tall App to Reduce the Risk of Falls. Abstract Submitted and presented at the Research New Brunswick Symposium, Fredericton.

Ugwuegbulem C.T. et al. (2025). Accessing the impact of participant characteristics on variability in balance intensity within a fall prevention exercise program for older adults. Abstract submitted and presented at Knowledge Translation Summer School, Vancouver.

Ugwuegbulem C.T. et al. (2025). Variability in Balance Intensity During a Community Fall Prevention Exercise Program for Aging Adults. Abstract submitted to the Parachute Falls Prevention Conference, Toronto.