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A Narrative Review on the Multidisciplinary Integration of Occupational Therapy and Nursing in Primary Care for Fall Prevention and Home Safety Adaptations Among Elderly Patients

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Abstract

Background: Falls among older adults are a critical public health issue, leading to significant morbidity, mortality, and healthcare costs. Primary care is the frontline for managing fall risk, yet traditional siloed approaches often fail to address its multifactorial nature comprehensively. The integration of occupational therapy (OT) and nursing within primary care teams presents a promising model to bridge this gap.

Aim: This narrative review aims to critically synthesize the evidence on the multidisciplinary integration of OT and nursing in primary care for fall prevention and home safety adaptations for elderly patients, examining models, effectiveness, and implementation factors.

Methods: A systematic search of four electronic databases (PubMed, CINAHL, Scopus, PsycINFO) was conducted for literature published between 2010-2024. Peer-reviewed articles, reviews, and key reports were included and analyzed thematically.

Results: Integrated OT-nursing models consistently demonstrate superior outcomes in reducing fall rates, improving functional performance, and enhancing home safety compared to usual care. Key success factors include co-location, interprofessional education, shared assessments, and collaborative care planning. Significant barriers include funding structures, scheduling, and role ambiguity.

Conclusion: Intentional integration of OT and nursing expertise in primary care is highly effective for fall prevention. Future efforts must focus on sustainable implementation strategies, standardized outcome measures, and policy reforms to support team-based care.

Keywords: Occupational Therapy, Nursing, Primary Care, Fall Prevention, Interprofessional Collaboration.

Introduction

Falls represent a pervasive and devastating threat to the health, independence, and quality of life of older adults globally. With aging populations, the incidence of falls and their associated burdens—including fractures, traumatic brain injuries, functional decline, fear of falling, and escalating healthcare expenditures—is projected to rise dramatically (World

Health Organization, 2021). Primary care, as the first and most continuous point of contact within the health system, is strategically positioned to identify, assess, and manage fall risk (Tinetti & Kumar, 2010). However, the etiology of falls is inherently multifactorial, encompassing intrinsic factors (e.g., balance deficits, polypharmacy, vision impairment) and extrinsic factors (e.g., home hazards, improper

footwear) (Ambrose et al., 2013). Traditional, physician-centric primary care models often lack the time, specific expertise, and holistic perspective required to address this complex interplay effectively.

This complexity necessitates a shift from siloed practice to collaborative, team-based care. Among the various health professions, occupational therapy (OT) and nursing offer complementary and synergistic skill sets that are uniquely suited to comprehensive fall risk management (Choi & Hector, 2012). Nursing brings expertise in holistic health assessment, medication review, management of chronic conditions, and patient education. Occupational therapy contributes specialized knowledge in functional performance analysis, environmental modification, adaptive equipment prescription, and engagement in meaningful daily activities (Gillespie et al., 2012). The integration of these two disciplines within the primary care setting promises a more robust, person-centered approach to fall prevention. This narrative review synthesizes the contemporary evidence (2010-2024) on the models, outcomes, and implementation considerations of integrating OT and nursing in primary care, specifically for fall prevention and home safety adaptations for elderly patients.

Theoretical Foundations for Integration

The integration of OT and nursing in fall prevention is underpinned by several robust theoretical frameworks. The Ecological Model of Aging emphasizes the transaction between the individual's competencies and the pressures of their environment, directly aligning with OT's focus on person-environment-occupation fit and nursing's assessment of physiological capacity (Lawton & Nahemow, 1973). The Integrated Model of Fall Prevention posits that effective interventions must concurrently target multiple risk factors—biological, behavioral, environmental, and socioeconomicwhich naturally calls for multidisciplinary expertise (Sun & Sosnoff, 2018). From an implementation science perspective, the Consolidated Framework for Implementation Research (CFIR) provides a useful structure for analyzing the factors influencing the successful integration of OT-nursing teams, including intervention characteristics, outer and inner settings, individual clinician attributes, and the process of implementation (Damschroder et al., 2009).

Furthermore, the concept of Interprofessional Collaborative Practice (IPCP), as defined by the Interprofessional Education Collaborative (IPEC), is central. IPCP involves multiple health workers from different professional backgrounds working together with patients, families, and communities to deliver the highest quality of care. Core competencies include roles/responsibilities, interprofessional communication, teams and teamwork, values/ethics, all of which are critical for seamless OTnursing collaboration (Collaborative, 2023). These theoretical foundations justify and guide the practical

integration of services, moving beyond simple coreferral to authentic co-management of patients.

Roles and Complementary Expertise of OT and Nursing in Fall Prevention

A clear understanding of the distinct yet overlapping roles of OT and nursing is fundamental to effective integration. In the context of primary care fall prevention, nurses often serve as the initial screeners and case coordinators. They conduct comprehensive geriatric assessments, review medications for fall-risk-increasing drugs (FRIDs) in collaboration with prescribers, monitor vital signs and chronic diseases like orthostatic hypotension, and provide education on topics such as safe footwear and proper use of assistive devices (Chase et al., 2017; Phelan et al., 2016). Advanced practice nurses may also lead medication management and develop initial care plans.

Occupational therapists build upon this foundation with a deep, occupation-focused analysis. Their assessment is uniquely centered on performance. They conduct detailed evaluations of balance and mobility during daily activities (e.g., while carrying laundry, reaching into cabinets), assess cognitive and visual-perceptual skills as they relate to safe task execution, and perform thorough home safety evaluations, either in-person or via validated telehealth protocols (Lucas Molitor et al., 2022; Stanmore et al., 2019). OTs are experts in task modification, prescribing and training in the use of adaptive equipment (e.g., grab bars, shower benches, reachers), and implementing behavioral strategies to reduce risk during daily routines. Crucially, they address the psychological impact of falls, such as fear of falling, which can lead to activity restriction and further functional decline (Kumar et al., 2016).

The synergy lies in the continuous feedback loop: the nurse identifies a patient with polypharmacy and unsteady gait; the OT assesses how this manifests during toileting at home and recommends specific bathroom modifications and a medication schedule placed next to the toilet. The nurse then reinforces these strategies during follow-up calls and monitors for side effects of any adjusted medications. This collaborative cycle ensures interventions are medically sound, practically applicable, and tailored to the patient's lived environment and habits.

Models of Integrated OT-Nursing Practice in Primary Care

Several organizational models for integrating OT and nursing into primary care have been described in the literature, varying in depth of integration and operational structure.

Co-Located/Embedded Model

In this model, an OT is physically embedded within the primary care clinic, often as a core member of the team alongside nurses, physicians, and social workers. This facilitates "warm handoffs," immediate consultation, and shared charting within a single electronic health record (EHR). For example, following a routine visit where a nurse identifies fall

concerns, the patient can be seen by the OT in the same location, often on the same day (Liu et al., 2021). This model maximizes communication efficiency and patient convenience.

Hub-and-Spoke/Care Coordination Model

This model features central, multidisciplinary falls prevention service or clinic (the hub) that receives referrals from multiple primary care practices (the spokes). The hub team typically includes OTs, nurses (often specialist falls nurses), physiotherapists, and geriatricians. The primary care nurse acts as the key referral coordinator and liaison, transmitting patient information to the hub and receiving detailed assessment reports recommendations back to implement and monitor in the community (Morris et al., 2019). This model is efficient for resource-sharing across a geographic area.

Transitional Care Model

Focused on high-risk periods following hospital discharge or an acute health event, this model involves close collaboration between inpatient/ED nurses and community-based OTs. The hospital nurse conducts a discharge fall risk assessment and communicates directly (e.g., via phone or secure message) with a designated community OT to prioritize a rapid home safety visit. Protocols may include bundled interventions: medication reconciliation by the nurse combined with an environmental assessment by the OT within 48-72 hours of discharge (Finlayson et al., 2018). Figure 1

illustrates the integrated workflow between occupational therapists and nurses in primary care fall-prevention programs.



Figure 1: Multidisciplinary OT-Nursing Workflow in Primary Care
Telehealth-Integrated Model

Increasingly relevant, this model uses technology to facilitate collaboration. A primary care nurse conducts a virtual visit, observes potential hazards via video, and then convenes a virtual "huddle" with an OT to review the case. The OT may then conduct a guided, patient-led video tour of the home. They collaboratively develop a plan, which the nurse supports the patient in implementing, with follow-up virtual checks by the OT (Jhaveri et al., 2017). This model improves access, particularly in rural areas (Table 1).

Table 1: Comparison of Integration Models for OT-Nursing Fall Prevention in Primary Care

Model	Description	Strengths	Challenges
Co-	OT is a full-time, on-site	High communication	High upfront cost, requires
Located/Embedded	member of the primary care	ease, immediate	clinic space, and buy-in
	team.	consultation, and patient convenience.	from the entire practice.
Hub-and-Spoke	The centralised specialist falls service receives referrals from multiple primary care clinics.	Efficient use of specialist resources, standardized assessment protocols.	Can create care fragmentation; requires a strong liaison role for the primary care nurse.
Transitional Care	Focused collaboration during care transitions (e.g., hospital to home).	Targets the highest-risk periods, prevents readmissions.	Requires robust health information exchange and defined communication pathways.
Telehealth- Integrated	Uses virtual platforms for joint assessments, consultations, and follow-up.	Increases access, reduces travel burden, flexible.	Digital literacy barriers, limitations in hands-on assessment of some hazards.

Effectiveness and Outcomes of Integrated Interventions

A substantial body of evidence from the past decade supports the effectiveness of integrated OT-nursing interventions in primary care fall prevention. Systematic reviews have consistently found that multifactorial interventions, which are inherently interdisciplinary, are more effective in reducing fall rates than single interventions or usual care (Hopewell et al., 2018; Sherrington et al., 2019). Specifically,

programs explicitly leveraging OT and nursing collaboration show significant positive outcomes.

Reduction in Fall Incidence and Risk

Randomized controlled trials (RCTs) demonstrate that integrated programs lead to a 20-35% greater reduction in fall rates compared to standard primary care advice alone (Miranda-Duro et al., 2021; Bruce et al., 2021). The combination of nursing-led medication optimization with OT-led home safety and

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behavior change interventions appears to be a particularly potent component of successful programs. Improvements in Functional Performance and Safety

Studies report significant improvements in measures of daily living performance, balance confidence (e.g., Activities-specific Balance Confidence Scale), and reduction in activity restriction due to fear of falling (Kamei et al., 2023; Kumar et al., 2016). Home safety assessment and modification led by OTs, with follow-up reinforcement by nurses, result in a higher proportion of recommended adaptations being successfully implemented and maintained by patients compared to written advice only (Tomita et al., 2014).

Healthcare Utilization and Cost-Effectiveness

There is growing evidence that integrated OT-nursing models are cost-effective or even cost-saving from a health system perspective. By preventing falls and related injuries, these programs reduce expensive outcomes such as emergency department visits, hospital admissions, and long-term care placements (Carande-Kulis et al., 2015). An economic analysis of a nurse-OT home visit program found it to be highly cost-effective, particularly for high-risk older adults (Chi et al., 2020). Figure 2 shows the intrinsic and extrinsic fall-risk factors in

older adults to corresponding OT and nursing interventions, including environmental modification, chronic disease monitoring, medication optimization, and activity-based functional training.

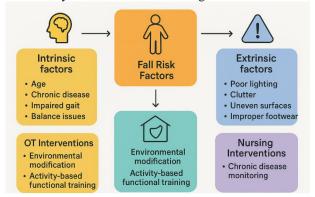


Figure 2: Fall Risk Factors and Intervention Targets

Patient and Caregiver Satisfaction

Qualitative studies highlight that patients and their families value the comprehensive, personalized, and practical nature of care provided by integrated teams (Table 2). They report feeling heard, gaining a better understanding of their risk, and receiving actionable strategies that fit into their daily lives (Liddle et al., 2018; Szanton et al., 2014).

Table 2: Key Outcome Domains and Evidence for Integrated OT-Nursing Fall Prevention

Outcome	Examples of Measured Outcomes	Supporting Evidence (Sample Findings)	
Domain			
Fall-Related	Fall rate, number of fallers, time to first	RCTs show 20-35% greater reduction in fall rates	
Outcomes	fall, and injurious falls.	vs. control (Miranda-Duro et al., 2021; Bruce et	
		al., 2021).	
Functional &	Balance confidence (ABC Scale), fear	Significant improvements in balance confidence	
Psychosocial	of falling, and daily activity	and reduction in activity restriction (Kamei et al.,	
	performance.	2023; Kumar et al., 2016).	
Home Safety	Number of home hazards,	OT-led home assessments yield higher	
	implementation rate of safety	implementation rates of modifications (Tomita et	
	adaptations.	al., 2014).	
Healthcare	ED visits, hospitalizations, and nursing	Associated with reductions in acute care use,	
Utilization	home admissions.	demonstrating cost-effectiveness (Carande-Kulis	
		et al., 2015).	
Process &	Patient/caregiver satisfaction,	High satisfaction reported due to personalized,	
Satisfaction	adherence to recommendations.	practical approach (Liddle et al., 2018; Szanton et	
		al., 2014).	

Implementation Facilitators and Barriers

The successful translation of integrated occupational therapy (OT) and nursing models from research protocols into sustainable, routine primary care practice demands a careful navigation of a complex implementation landscape. Frameworks such as the Consolidated Framework for Implementation Research (CFIR) provide a valuable structure for analyzing the multilevel factors that influence this process, encompassing the intervention characteristics, outer and inner settings, individual clinician attributes, and the implementation process itself (Damschroder et al., 2009). A clear

understanding of the specific facilitators and barriers within each of these domains is essential for designing effective implementation strategies.

Several key facilitators have been consistently identified as catalysts for successful integration. Strong leadership and a shared vision at both the organizational and clinic level are foundational; leaders who actively champion teambased care and allocate the necessary resources signal their priority and create a culture conducive to collaboration (Liu et al., 2021). This cultural shift is bolstered by interprofessional education (IPE), which builds the necessary competencies for

collaborative practice. Training OT and nursing students together fosters early mutual understanding of roles and responsibilities, while joint continuing education for practicing clinicians hones specific collaborative skills, such as shared goal-setting and conflict resolution (Collaborative, 2023; Taylor et al., 2019).

At the operational level, physical colocation and shared workspace remain powerful, though low-tech, facilitators. Proximity enables the informal "curbside" consultations and immediate problem-solving that build trusting relationships and streamline care (Jhaveri et al., 2017). This is complemented by integrated health information technology, particularly a shared electronic health record (EHR) system. Customizable EHR templates that support joint documentation, streamlined internal referral pathways, and embedded secure messaging functions are critical tools for coordinating care and maintaining communication loops (Latulippe et al., 2019). Ultimately, these operational supports must be aligned with supportive reimbursement models. Value-based payment structures that financially reward positive patient outcomes and reduced acute care utilization, as opposed to volume-driven fee-forservice models, create the necessary economic incentive for collaborative, preventive care (Bates & Bitton, 2010).

Conversely, significant barriers persistently challenge the implementation and sustainability of integrated models. Financing and reimbursement issues are arguably the most pervasive and formidable barriers. In many healthcare systems, occupational therapy services are not recognized as billable within the primary care setting, and nursing time dedicated to care coordination and interprofessional consultation is frequently an unfunded activity, rendering integrated models financially unsustainable for practices (Liu et al., 2021). This structural challenge is often compounded by role ambiguity and professional turf concerns. A lack of clarity regarding the distinct yet overlapping scopes of practice for nurses and OTs can lead to either wasteful duplication of services or dangerous gaps in care, while historical professional hierarchies can inhibit open communication and shared decision-making (Choi & Hector, 2012). At the clinic workflow level, scheduling and workflow integration pose practical hurdles.

Embedding a new professional into a high-volume primary care environment necessitates the reengineering of appointment templates, visit lengths, and patient flow, which can be perceived as disruptive and burdensome to established routines (Finlayson et al., 2018). Relatedly, the **chronic lack of protected time for collaboration** is a critical barrier. Without dedicated, paid time for team huddles, case conferences, or joint visits, collaboration becomes an uncompensated addition to already full workloads, leading to clinician burnout and a reliance on

inefficient, asynchronous communication methods like lengthy email chains. Finally, variability and inefficiency in referral processes can stymie integration. Unclear criteria for when and how to refer between nursing and OT, or cumbersome, multi-step referral systems, create delays in intervention and frustrate both clinicians and patients (Morris et al., 2019). Addressing these interconnected barriers requires a multifaceted approach that aligns financial incentives, clarifies professional roles, redesigns workflows, and intentionally creates the time and space for collaborative practice.

Discussion and Future Directions

The synthesis of evidence from the past decade and a half presents a compelling argument: the intentional, systematic integration of occupational therapy and nursing within the primary care milieu creates a synergistic partnership far greater than the sum of its parts (Choi & Hector, 2012; Liu et al., 2021). This partnership directly counteracts the traditionally siloed approach to fall prevention by providing a unified, person-centered response to a multifactorial problem (Tinetti & Kumar, 2010). As this review has demonstrated, effective integration transcends simple cross-referral. It necessitates the deliberate construction of collaborative workflows, the establishment of shared patient-centered goals, and cultivation of reciprocal, trust-based communication channels embedded within the clinical routine (Collaborative, 2023).

The resultant outcomes are robust and multidimensional, extending well beyond the crucial metric of reduced fall incidence. Integrated care fosters enhanced functional independence, mitigates the debilitating cycle of fear and activity restriction, improves overall quality of life, and promotes a more efficient and cost-effective deployment of healthcare resources by preventing costly downstream adverse events (Wheeler et al., 2018; Sherrington et al., 2019). This model aligns perfectly with the quintuple aim of healthcare, enhancing patient experience, improving population health, reducing costs, improving clinician well-being through team-based support, and advancing health equity (Nundy et al., 2022).

Despite this robust evidence base, a chasm persists between significant empirical widespread, sustainable validation and implementation in real-world primary care settings (Glasgow et al., 2019). This implementation gap is driven by entrenched structural, financial, and cultural barriers that are not overcome by evidence alone (Damschroder et al., 2009). To bridge this gap and translate promise into standard practice, concerted efforts must be directed along several critical future pathways.

Foremost among these is the imperative for **comprehensive policy and payment reform**. The current fee-for-service reimbursement landscape in many healthcare systems inherently disadvantages

collaborative, preventive care (Bates & Bitton, 2010). Occupational therapy services are frequently not recognized as billable within primary care encounters, and nursing time dedicated to care coordination and interprofessional consultation is often an unfunded activity (Liu et al., 2021; Phelan et al., 2016). Sustainable integration requires advocacy for policy changes that formally recognize OT as a core, reimbursable primary care service (AOTA, 2020). Furthermore, a shift towards value-based and alternative payment models is essential. These models, such as bundled payments for population health or capitated arrangements, financially reward the outcomes achieved by interprofessional teams—like reduced hospitalizations from falls—rather than penalizing the collaboration needed to achieve them (Miller et al., 2020). Policy must incentivize the colocation of services and fund the infrastructure necessary for team-based care, making integration a financially viable, rather than philanthropic, endeavor.

To support the scaling of successful models across diverse healthcare contexts, there is a pressing need for the development and validation of implementation toolkits standardized and protocols (Bauer & Kirchner, 2020). While the principles of integration are consistent, primary care practices vary widely in size, resources, and patient populations. "Off-the-shelf," adaptable toolkits can lower the barrier to entry. These toolkits should include detailed workflow maps outlining patient identification, referral triggers, and handoff procedures between nurses and OTs (Tomita et al., 2014). They must also contain standardized, shared assessment tools that minimize duplication and enhance communication, such as integrated fall risk screens and home safety checklists (Elliott & Leland, 2018). Templates for shared documentation within electronic health records (EHRs) are crucial to streamline workflow and ensure all team members are informed (Latulippe et al., 2019). Finally, bundled patient education materials that present a unified message from the team can improve adherence and reinforce learning (Liddle et al., 2018). The widespread dissemination of such toolkits, perhaps through professional associations or government health agencies, would provide a practical roadmap for practices seeking to initiate or enhance integration.

Enhanced interprofessional education (IPE) must evolve from a foundational academic exercise to a continuous professional practice (Taylor et al., 2019). While pre-licensure IPE is vital for fostering early attitudes of collaboration, the specific competencies required for effective OT-nursing fall prevention partnerships are often honed in practice (Collaborative, 2023). Continuing professional development programs should create structured opportunities for practicing OTs and nurses to train together. This could involve joint workshops on advanced skills directly applicable to their collaborative work, such as motivational interviewing

for health behavior change, conducting simulated or actual joint home assessments, or developing shared care planning techniques (Finlayson et al., 2018). Such training not only builds practical skill but also deepens mutual respect and understanding of each profession's unique lens and expertise, solidifying the teamwork necessary for daily practice (Bridges et al., 2011).

Finally, the agenda for **future research must** pivot towards implementation science and health equity (Baciu et al., 2017). While efficacy is wellestablished, more research is needed using hybrid effectiveness-implementation designs (Curran et al., 2012). These studies would simultaneously measure patient outcomes while rigorously testing specific implementation strategies (e.g., audit and feedback, clinical champions, modified reimbursement) in diverse primary care settings, including rural clinics safety-net practices serving vulnerable populations (Glasgow et al., 2019). This research is critical to understand how to best integrate services in resource-constrained environments. Furthermore, research must explicitly examine and actively address disparities in access to integrated fall prevention (Latulippe et al., 2019). Studies should investigate barriers faced by marginalized elderly populations, including those from racial and ethnic minority groups, low-income backgrounds, or non-English speaking communities (Phelan et al., 2016). Interventions and implementation strategies must be co-designed with these communities to ensure they are culturally appropriate, accessible, and effective in reducing the disproportionate burden of falls and their consequences (Kondo et al., 2021). By focusing on equity, the integration of OT and nursing can fulfill its potential not just to improve care but to make it more just.

Conclusion

Falls in older adults are a complex syndrome requiring a complex solution. The multidisciplinary integration of occupational therapy and nursing in primary care represents a paradigm shift from a reactive, medicalized approach to a proactive, holistic, and function-centered model of care. While logistical and financial barriers are significant, the evidence for improved patient outcomes and system efficiency is robust. By investing in the structural, educational, and policy supports needed to nurture this collaboration, healthcare systems can make substantial progress in safeguarding the independence and well-being of their aging populations. The path forward requires a clinicians. concerted commitment from administrators, educators, and policymakers to translate this powerful evidence into standard practice.

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