Alert Systems for Missing Persons Living with Dementia: From Policy to Implementation

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see Statement of Contributions included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

This dissertation includes three manuscripts that have been submitted or prepared for publication. Exceptions to sole authorship:

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As lead author of these three chapters, I was responsible for conceptualizing study design, carrying out data collection and analysis, and drafting and submitting manuscripts. My co-authors provided guidance during each step of the research, as well as feedback on draft manuscripts. Dr. Lili Liu provided significant direction and editorial assistance throughout. Under the supervision of Dr. Lili Liu, I also prepared the other chapters in this dissertation.

Abstract

Background: People living with dementia are at risk of going missing and experiencing serious harm. Alert systems, such as the BC Silver Alert in Canada, Silver Alert in the United States, and Purple Alert in Scotland, use mobile apps or media to notify the public and assist in locating missing persons with dementia. Policies regarding alert systems exist in the United States. Two Canadian provinces mention Silver Alert in Missing Persons Acts, but these legislations are not associated with implementation of these systems. Little is known about how alert systems for older adults are implemented and adopted, specifically in Canada.

Objectives: This dissertation examined the development and implementation of alert systems for missing persons with dementia across Canada, Scotland, and the United States through three studies. Study 1 explored user experiences implementing alert systems and related policies, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts. Study 2 examined the conditions surrounding alert system implementation, using the Knowledge-to-Action (KTA) Framework. Study 3 explored multi-level factors influencing implementation of alert systems, guided by the Consolidated Framework for Implementation Research (CFIR).

Methods and Results: Using a multiple case study design, data were collected through policy document review, interviews, and focus groups with 40 stakeholders, including people with lived experience, first responders, service providers, policymakers, technology developers, and researchers. Data from the three studies were analyzed using thematic analysis. Study 1 underscored the importance of stakeholder engagement, legislative support, timely police reporting, coordinated search efforts, and public education in implementing alert systems and

locating missing persons. The findings also highlighted the emotional impact of missing incidents on people living with dementia and their care partners and challenges such as inaccurate tips, which can delay search efforts. Study 2 findings revealed variability in alert system implementation and related policies and identified individual and organizational barriers, including limited understanding, privacy concerns, alert fatigue, sustainability, and accessibility. Findings from Study 3 identified key factors influencing alert systems implementation across CFIR domains: Intervention Characteristics (relative advantage, evidence strength and quality, cost), Outer Setting (end user needs and resources, cosmopolitanism, external policy and incentives), Inner Setting (culture, available resources), Characteristics of Individuals (knowledge and beliefs about the intervention), and Implementation Process (planning, engaging stakeholders, reflecting and evaluating). Findings from the three studies emphasize the importance of integrated implementation of alert systems that actively engage stakeholders, address contextual factors and challenges, and ensure equitable access for all users.

Contributions: This dissertation provides an understanding of how current alert systems and related policies are developed and implemented to locate missing persons with dementia. Effective implementation of alert systems relies on cross-sector collaboration, clear and consistent policy, user-centered design, sustained funding, dementia-specific training and public education, and continuous evaluation. The framework and recommendations proposed in this dissertation offer practical guidance for policy and practice in alert system implementation to reduce the risks associated with going missing and uphold the safety and dignity of people living with dementia. Sustainability of any alert system implementation relies on rigorous and compelling evaluation of impact.

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Table of Contents

Examining Committee Membership ii

Author's Declaration iii

Statement of Contributions iv

Abstract v

Acknowledgements vii

List of Figures xv

List of Tables xvi

List of Abbreviations xvii

Chapter 1: Introduction 1

1.1. General Overview 1

1.2. Dissertation Roadmap 2

Chapter 2: Literature Review 4

2.1. Dementia-related Missing Incidents 4

2.2. Prevalence of Missing Incidents 5

2.3. Risk Factors Associated with Missing Incidents 7

2.3.1. Neurocognitive Factors 7

2.3.2. Contextual or Situational Factors 8

2.3.3. Environmental Factors 9

2.3.4. Other Factors 10

2.4. Impact of Going Missing 11

2.4.1. Impact on People Living with Dementia 12

2.4.2. Impact on Care Partners and Others 14

2.5. Strategies for Managing Risks of Going Missing 17

2.5.1. Awareness and Identification Programs 17

2.5.2. Environmental Strategies 18

2.5.3. Locating Technologies 18

2.5.4. Organizational and Police Strategies 21

2.5.5. Alert Systems 23

2.5.5.1. Community-based Alert Systems 24

2.5.5.2. Public or State-wide Alert Systems 25

2.6. Ethical and Legal Concerns in Alert Systems 25

2.7. Theoretical Frameworks 27

2.7.1. The Knowledge-to-Action Framework 28

2.7.2. The Consolidated Framework for Implementation Research 29

2.8. Summary and Rationale 30

Chapter 3: Research Objectives 34

Chapter 4: Methodology and Methods 36

4.1. Overview 36

4.2. Study Design 36
4.3. Ethics Approval 37
4.4. Study Settings and Participant Recruitment 38
4.5. Data Collection 41
4.6. Data Analysis 44
4.7. Field and Reflexive Notes 45
4.8. Statement of Positionality 45
4.9. Study Rigour 47
Chapter 5: Study 1 49
5.1. Overview 50
5.2. Background 52
5.3. Methods 55
5.4. Results 55
5.4.1. Implementing Alert Systems and Policies 55
5.4.2. Experiences of Going Missing 59
5.4.3. Factors that help or delay locating missing persons 73
5.5. Discussion 78
5.5.1. Recommendations for Policy and Practice 82
5.5.2. Strengths and Limitations 83
5.6. Conclusion 84

Chapter 6: Study 2 86
6.1. Overview 87
6.2. Background 88
6.2.1. Theoretical Framework 92
6.3. Methods 93
6.4. Results 94
6.4.1. Findings from Document Review and Stakeholder Engagement 94
6.4.1.1. Problem Identification 94
6.4.1.2. Perceived Barriers to Implementation and Use of Alert Systems 100
6.4.1.3. Evaluating Outcomes 111
6.5. Discussion 113
6.5.1. Future Directions 116
6.5.2. Strengths and Limitations 117
6.5.3. Conclusion 118
Chapter 7: Study 3 119
7.1. Overview 120
7.2. Background 121
7.2.1. Theoretical Framework 123
7.3. Methods 125
7.4. Results 125

7.4.1. Factors Influencing Implementation of BC Silver Alert, Purple Alert, and US Silver Alert 127
7.4.1.1. Intervention Characteristics 128
7.4.1.2. Outer Setting 133
7.4.1.3. Inner Setting 137
7.4.1.4. Characteristics of Individuals 140
7.4.1.5. Implementation Process 142
7.5. Discussion 146
7.5.1. Implications for Policy and Practice 151
7.5.2. Strengths and Limitations 152
7.6. Conclusion 153
Chapter 8: General Discussion 154
8.1. Overview 154
8.2. Summary of Key Findings 155
8.3. Integrated Findings 161
8.4. Implications and Recommendations 166
8.4.1. Implications 166
8.4.2. Recommendations for Policy and Practice 168
8.4.2.1. Evidence-based Implementation Framework for Alert Systems 168
8.4.3. Future Directions 171

8.5. Strengths and Limitations 172

8.6. Conclusions 175

References 176

Appendices 198

Appendix A. Information Letter and Consent Form – Individual Interview 198

Appendix B. Information Letter and Consent Form – Focus Group 203

Appendix C. Participant Recruitment Email Script 208

Appendix D. A Call for Participants [Website] 209

Appendix E. Recruitment Poster 210

Appendix F. CFIR-Informed Sample Interview Guide Questions 211

List of Figures

Figure 1. Knowledge-to-Action Framework (Graham et al., 2006) 93
Figure 2. Factors Influencing Implementation of Alert Systems for Locating Missing Persons with Dementia. Adapted from Damschroder et al., 2009. 128
Figure 3. Evidence-based Implementation Framework for Alert Systems 169

List of Tables

Table 1. Participant demographics 40
Table 2. A summary of interview and focus group timelines 43
Table 3. Policies and legislation related to alert systems (Canada, Scotland, and the US) 96
Table 4. The Consolidated Framework for Implementation Research domains and constructs (Damschroder et al., 2009) 124
Table 5. Overview of BC Silver Alert, Purple Alert, and US Silver Alert 126
Table 6. Summary of key facilitators and barriers to implementation and use of alert systems 162

List of Abbreviations

BC	British Columbia
CCTV	Closed-circuit television
CFIR	Consolidated Framework for Implementation Research
CHP	California Highway Patrol
GPS	Global Positioning System
InterRAI	International Resident Assessment Instrument
KTA	Knowledge-to-Action
LTE	Long-Term Evolution
NHS	National Health Service
RCMP	Royal Canadian Mounted Police
RFID	Radio frequency identification
SMS	Short Message Service
UK	United Kingdom
US	United States

Chapter 1: Introduction

1.1. General Overview

The number of people living with dementia who get lost or go missing has risen in recent years (Larsson et al., 2025; Neubauer, Miguel-Cruz, et al., 2021). This increase is associated with a growing number of people living with cognitive impairments such as memory loss, confusion, spatial disorientation, and wayfinding difficulties, which can cause individuals to become lost—even in familiar environments (Hugo & Ganguli, 2014; Kuliga et al., 2021; Rowe et al., 2012). Missing persons face serious risks, including injury or death (Bantry White & Montgomery, 2015; Larsson et al., 2025), and such incidents can cause significant anxiety, stress, and emotional strain for care partners (Li et al., 2024; Shalev Greene et al., 2019).

Although several risk mitigation strategies, including the Global Positioning System devices exist, these tools are often not adopted until after a missing incident has occurred (Kikuchi et al., 2019). It is believed that early identification and location of missing persons can reduce harm, thereby emphasizing the importance of effective strategies, public awareness, and local preparedness. The growing number of dementia-related missing incidents has contributed to petitions for a nationally coordinated Silver Alert system in Canada (Adekoya et al., 2021; Neubauer, Daum, et al., 2021).

Alert systems, such as Canada's BC Silver Alert, Scotland's Purple Alert, and the United States (US) Silver Alert, leverage technologies such as media broadcasts and mobile applications to notify the public and mobilize assistance in locating missing persons with dementia (Adekoya et al., 2021; Gergerich & Davis, 2017). Despite growing public support for alert systems,

significant gaps remain in our understanding of how alert systems and related policies—such as legislation and bills—are being implemented and adopted, particularly within the Canadian context (Adekoya et al., 2021).

This dissertation examines the development and implementation of alert systems and related policies for missing persons with dementia at local, municipal, provincial, or national levels in Canada, Scotland, and the United States, through three studies guided by the Knowledge-to-Action Framework (Graham et al., 2006) and Consolidated Framework for Implementation (Damschroder et al., 2009). These frameworks informed both data collection and analyses. The three studies are presented in this dissertation.

1.2. Dissertation Roadmap

This section outlines the structure of the dissertation. **Chapter 2** provides a review of the relevant literature that frames the scope of the dissertation, an overview of the theoretical frameworks, and the rationale for the dissertation. This is followed by **Chapter 3** which presents the research objectives. **Chapter 4** outlines the general methodology, including study design, settings, participants, data collection and analysis procedures, and a statement of positionality.

The subsequent three chapters present the three studies that comprise the core of this dissertation. **Chapter 5** details Study 1 which presents user experiences with alert systems and policies for missing persons with dementia, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts. **Chapter 6** presents Study 2 which examined the conditions surrounding the implementation and use of alert systems, including potential barriers, by applying the Knowledge-to-Action (KTA) framework to bridge research and practice for effective knowledge translation. **Chapter 7** presents Study 3 which

explored factors that may arise across various multi-level contexts to influence implementation of alert systems for locating missing persons with dementia, using Consolidated Framework for Implementation (CFIR) to guide a systematic and comprehensive analysis of these factors.

Finally, **Chapter 8** provides integrated findings from the three studies, implications and recommendations for policy and practice, directions for future research, and conclusions.

Chapter 2: Literature Review

2.1. Dementia-related Missing Incidents

As the global population continues to age, the number of people living with dementia is expected to rise. Dementia, also known as major neurocognitive disorder, is a progressive medical condition characterized by a decline in cognitive functions such as judgment, language, and thinking which affects behaviour (Emmady et al., 2022). Dementia can result from various conditions, with Alzheimer's disease being the most common, accounting for about 60-70% of cases (Emmady et al., 2022; World Health Organization, 2025).

People living with dementia are at risk of getting lost or going missing due to cognitive impairments such as memory loss, confusion, and disorientation (Ward et al., 2022). Historically, getting lost has been associated with "wandering". However, this term includes a range of behaviours from aimless or disoriented movement to purposeful walking (Cipriani et al., 2014; Rowe et al., 2015). The type of wandering related to disorientation has been linked to safety risks such as falls or becoming lost (Cipriani et al., 2014; Park & Lee, 2024),

Recent research has encouraged a shift in perspective, emphasizing that wandering can be purposeful and meaningful, particularly in long-term care settings (Adekoya & Guse, 2019). Additionally, not everyone living with dementia who engages in wandering behaviour becomes lost and goes missing, even though these individuals face a higher risk of becoming lost (MacAndrew et al., 2018). Missing incidents are often described as "critical wandering", characterized by spatial disorientation and wayfinding challenges (Neubauer et al., 2018; Rowe et al., 2015).

2.2. Prevalence of Missing Incidents

Studies on the prevalence of dementia-related missing incidents are limited and vary due to inconsistencies in the terminologies used to describe missing persons and how data are collected (Miguel Cruz et al., 2022). For example, in Canada, legislation on data privacy can be a barrier to consistent approaches in data collection, and prevents data sharing between jurisdictions needed for a national strategy, leading to inconsistent practices and under-reporting (Adekoya et al., 2021; Miguel Cruz et al., 2022).

Missing incidents are increasingly prevalent among individuals living with Alzheimer's disease and can happen at any stage of dementia, regardless of sex (Miguel-Cruz et al., 2024; Rowe et al., 2011). Typically, those who go missing are reported to be older adults, with a higher prevalence observed among males (Bantry White & Montgomery, 2015; Larsson et al., 2025; Murata et al., 2021; Rowe et al., 2012) and individuals living alone or in unfamiliar settings (Kikuchi et al., 2019; Perez et al., 2024).

Although individuals living with dementia can go missing from a range of settings, the majority of incidents occur in community environments (Miguel-Cruz et al., 2024; Rowe et al., 2012), with studies suggesting that up to 60% are at risk of going missing (Lissemore et al., 2019; Miguel-Cruz et al., 2024). Early research found that 36.9% of people living with dementia had gotten lost outside their homes and 28.3% within, and persons diagnosed with Alzheimer's disease at higher risk compared to other types of dementia (Ballard et al., 1991). Nearly 40% of individuals living with dementia living at home had gone missing at least once, with 77% of those eventually institutionalized (McShane et al., 1998). Even individuals living with dementia

in care homes can go missing, with data from two Canadian police agencies indicating that 20% of incidents involve people who go missing from long-term care homes (Kowalski, 2020).

A prospective study in the United States (US) involving community-dwelling older adults living with dementia report 104 missing incidents among 79 individuals over one year, reflecting a 46% risk rate (Bowen et al., 2011). Similarly, a four-year retrospective study in a United Kingdom (UK) police jurisdiction report 281 missing incidents involving people living with dementia—59% occurred in domestic settings, 29% in long-term care homes or hospitals, and 12% during excursions (Bantry White & Montgomery, 2015). These prospective studies, which report relatively low rates of missing incidents, indicate that getting lost is characterized as a sentinel event. Rather than a common or routine occurrence, the severity and potential for significant harm—including injury, death, and emotional distress for the person missing, family and service providers (Larsson et al., 2025; Li et al., 2024)—make missing incidents a critical issue that warrants focused attention and proactive intervention. Recognition of missing incidents as sentinel events underscores the importance of implementing effective prevention strategies and timely responses to protect individuals living with dementia.

Studies in other countries have also reported on missing persons occurrences. In England and Wales, it is estimated that at least 40,000 people living with dementia go missing for the first time each year (Shalev Greene et al., 2019). In Japan, approximately 16,927 dementia-related missing incidents are reported annually (Murata et al., 2021). Similarly, in Canada, older adults now account for nearly 50% of missing persons reports in some jurisdictions (Government of Canada, 2021c). Between January 2015 and July 2021, 434 older adult MedicAlert® subscribers were involved in 560 missing incidents, with 345 (79.5%) self-reporting a dementia diagnosis (Miguel-Cruz et al., 2024).

Another study by Cruz et al. (2024) provides pan-Canadian estimates of the prevalence and associated risks of critical wandering among home care clients, using interRAI Home Care (interRAI HC) data from over 1.5 million individuals assessed between 2004 and 2021 in seven Canadian provinces and territories. The authors found that 3% of Canadian home care clients exhibited recent wandering behaviour, with the rate rising to 10.8% among those diagnosed with dementia. Dementia was associated with 18 times greater prevalence of recent critical wandering. The study emphasizes the need for integrated risk assessment and collaboration between health care providers and first responders to manage critical wandering (Cruz et al., 2024).

2.3. Risk Factors Associated with Missing Incidents

People living with dementia are at heightened risk of going missing due to a complex interplay of many factors, including neurocognitive, contextual or situational, and environmental (Perez et al., 2024; Rowe et al., 2015).

2.3.1. Neurocognitive Factors

Cognitive impairments, such as memory loss, spatial disorientation, and impaired executive function, can cause individuals to become lost even in familiar settings (Hugo & Ganguli, 2014; Kuliga et al., 2021; Rowe et al., 2015). Spatial disorientation, more common in Alzheimer's disease than other types of dementia, stems from an inability to link landmarks and routes (Algase, 2006; Kuliga et al., 2021; Marquardt, 2011). Many individuals living with dementia also experience anosognosia—lack of awareness of their condition due to frontal lobe damage—which can lead to agitated and disinhibited behaviour (Rowe et al., 2015; Tagai et al.,

2020). Those with anosognosia may underestimate or be unaware of their limitations, engaging in unsafe activities or dangerous behaviours (Tagai et al., 2020), such as leaving the home when agitated, walking or driving off alone despite instructions to wait, or venturing out unprepared in extreme weather (Rowe et al., 2015).

People living with dementia, including those in early stages of Alzheimer's disease, experience wayfinding challenges (Kuliga et al., 2021). Dementia affects brain functions, such as sensory and cognitive functions, including visual processing, path integration, and cognitive mapping, making it difficult to plan routes, recognize destinations, and navigate back (Davis & Weisbeck, 2016; Kuliga et al., 2021). These impairments lead to disorientation, confusion, and increased risk of getting lost, especially in complex or unfamiliar environments such as long-term care homes and hospitals. As a result, individuals living with dementia may experience anxiety, distress, and reduced interaction due to their difficulty perceiving, processing, and using environmental cues (Davis & Weisbeck, 2016; Kuliga et al., 2021).

2.3.2. Contextual or Situational Factors

People living with dementia can go missing during routine activities such as walking or driving, even when briefly left unattended or while accompanied (Miguel-Cruz et al., 2024; Perez et al., 2024; Rowe et al., 2011). Most missing incidents happen on foot during daylight hours and close to the person’s last known location, with many individuals located by care partners or passersby (Bowen et al., 2011; Larsson et al., 2025; Miguel-Cruz et al., 2024; Rowe et al., 2015).

A retrospective study of 560 missing incidents found that 91.9% occurred on foot and 4.4% involved public transport, typically in the afternoon or evening, with most individuals

found by first responders (47.7%) or Good Samaritans (46.1%) (Miguel-Cruz et al., 2024). Another study analyzing risk and harm found that missing incidents were often reported by health care providers, usually occurring in the afternoon and reported to police within two hours (Larsson et al., 2025). Missing persons were commonly located outdoors in public areas, returned on their own, or were found by police through patrols or hospital checks (Larsson et al., 2025). Fewer than 5% of incidents involved driving; however, these often required extensive police searches, and individuals were usually found farther from home (Rowe et al., 2015).

2.3.3. Environmental Factors

Environmental factors such as spaces that are challenging to navigate, harsh lighting, excessive noise, and changes in light, temperature, or humidity can significantly affect the behavioural, psychological, and spatial functioning of people living with dementia (Perez et al., 2024). Individuals living with dementia often avoid large, crowded, or overstimulating environments, as features such as crossings, junctions, and unfamiliar areas can trigger spatial disorientation (Kuliga et al., 2021).

Design elements that lack clear visual cues, landmarks, or supportive signage increase the risk of disorientation and getting lost (Davis & Weisbeck, 2016; Kuliga et al., 2021). This risk is further amplified when complex layouts and low-contrast signage are present. Even well-intentioned wayfinding supports can backfire if they overwhelm sensory input or create visual clutter instead of aiding navigation (Davis & Weisbeck, 2016; Kuliga et al., 2021).

In health care settings, similar-looking spaces, inadequate lighting, and repetitive architectural features —such as long, double-loaded hallways with identical doors—can further complicate wayfinding (Adekoya & Guse, 2019; Davis & Weisbeck, 2016; Marquardt, 2011).

These conditions can transform familiar surroundings into disorienting spaces, increasing the likelihood of confusion, getting lost, and missing incidents (Adekoya & Guse, 2019; Davis & Weisbeck, 2016; Marquardt, 2011).

Ghamari et al. (2025) and Quirke et al. (2023) highlight best practices for designing dementia-friendly spaces that promote wayfinding, autonomy, and well-being. Key strategies include intuitive layouts, clear sightlines, minimal decision points, and the use of visual landmarks such as colour-coded elements, distinctive artwork, and familiar objects to support orientation and reduce disorientation (Ghamari et al., 2025). Effective designs also incorporate contrasting colours, personalized cues like decorated bedroom doors, and appropriate lighting to highlight key features and improve safety while avoiding visual clutter and disorienting patterns (Azevedo et al., 2021; Ghamari et al., 2025; Quirke et al., 2023).

Multisensory elements—such as familiar scents, calming sounds, and textured surfaces—enhance memory and comfort, while home-like environments, personal belongings, accessible pathways, and secure outdoor spaces promote dignity and independence (Quirke et al., 2023). Evidence shows that such interventions improve wayfinding, reduce critical wandering and exit-seeking behaviours, and support engagement, with clear signage—especially pictograms or photos—proving particularly effective for people living with dementia (Azevedo et al., 2021; Ghamari et al., 2025; Quirke et al., 2023).

2.3.4. Other Factors

Personal characteristics can be related to an individual's risk of becoming lost and going missing (Adekoya & Guse, 2019; MacAndrew et al., 2018; Perez et al., 2024). Those who exhibit dementia-related behaviours, such as aggression and agitation, are particularly at risk

(Okita et al., 2016), especially if they have a history of previous missing incidents (Perez et al., 2024; Rowe et al., 2012). Also, missing incidents may be preceded by confusion and agitation (Bowen et al., 2011; Perez et al., 2024). Persons living with dementia may attempt to leave their current environment in response to agitation, distress, or anxiety-provoking situations, often as a way to escape discomfort or confusion (Perez et al., 2024). When agitation escalates to severe levels, it can lead to violent or aggressive behaviour, posing safety risks not only to the individual but also to their care partners, health care providers, and those around them (Liu et al., 2023). Such episodes can significantly disrupt daily routines (Liu et al., 2023; Watson & Hatcher, 2021), including supervised activities like walking, and may increase the likelihood of the person leaving unsupervised, placing them at greater risk of becoming disoriented or lost. These patterns underscore the importance of managing agitation and aggression proactively to reduce the risk of going missing.

Additionally, certain personality traits—such as extraversion, agreeableness, and conscientiousness—along with unmet needs (including hunger, pain, lack of exercise or meaningful activities, the need for security, and familiar connections) and an inadequate support system have also been linked to the occurrence of missing incidents (Perez et al., 2024).

2.4. Impact of Going Missing

The impacts of going missing can be profound and far-reaching and extend beyond the individual, affecting families, friends, and communities emotionally, psychologically, and financially.

2.4.1. Impact on People Living with Dementia

Reported rates of injury resulting from dementia-related missing incidents vary across studies. The likelihood of severe harm increases with longer durations of being missing, particularly in cold weather or when individuals find themselves isolated in natural environments such as dense brush or ditches (Bantry White & Montgomery, 2015; Yoo, 2024). Additionally, the mode of transportation—whether driving or using public transit—also plays a role in the severity of harm (Bantry White & Montgomery, 2015).

Research indicates that missing individuals are often located close to their last known position, typically within one mile to five miles (approximately 1.6 to 8 kilometers) of where they were last seen (Ferguson et al., 2023; Rowe et al., 2011; Woolford et al., 2017). Unfortunately, if not located in time, missing persons with dementia are at risk of serious injuries or death. An exploratory study involving 160 family members of missing persons with dementia found that 75% of these individuals died primarily from hypothermia or drowning, with fewer incidents attributed to traumatic injuries or accidents (Kikuchi et al., 2019). Likewise, a retrospective study analyzing 325 cases of dementia-related missing incidents over four years reveals that 68% of missing persons with dementia were found alive, while 32% were found deceased from exposure, drowning, and being struck by a vehicle 24 hours after gone missing (Rowe et al., 2011).

In contrast, Larsson et al. (2025) analyzed 1,041 dementia-related missing person incidents from the Swedish police registry and report that 6% involved harm, ranging from minor injuries to fatalities. Similarly, Miguel-Cruz et al. (2024) report that over 90% of MedicAlert® subscribers who went missing were safely returned home, with low occurrences of

harm and death. In another study, 5% of the 281 missing persons with dementia experienced significant harm—such as falls, hypothermia, water-related injuries, road traffic accidents, and deaths—while approximately 95% were found unharmed and less than 1% were deceased (Bantry White & Montgomery, 2015). Although a small number of missing persons with dementia are never found, missing incidents are sentinel events—rare but serious—with high potential for harm. This points to the need for proactive intervention strategies to reduce risks associated with dementia-related missing incidents.

Risk of harm in dementia-related missing incidents is influenced by factors such as season and time of day. Kikuchi et al. (2019) found in their exploratory study on outcomes for missing individuals with dementia in Japan, that 40% of 72 deceased individuals living with dementia went missing in winter, 21% in the spring season, 17% in the autumn season, and 15% in the summer season, with most cases occurring between 12:00 and 20:00 hours (Kikuchi et al., 2019). Missing individuals with dementia who died have been reported to be more likely to have gone missing at night (18:00–5:59) (Saito et al., 2018), although another study report no significant difference in harm was found between daytime and nighttime incidents (Bantry White & Montgomery, 2015).

Additionally, Saito et al. (2018) analyzed 2,145 cases of people living with dementia who went missing from the community and found that 1.6% were found deceased, with these incidents more likely to involve going missing during nighttime and delayed reporting to police. Likewise, Larsson et al. (2025) report that higher risk of harm in dementia-related missing incidents was associated with cold weather, no prior incidents, longer time since last contact, delayed reporting, and prolonged police searches.

People living with dementia who go missing from long-term care homes face a heightened risk of injury, harm, and even death (Bantry White & Montgomery, 2015; Larsson et al., 2025). Although research specific to missing incidents in long-term care settings is limited, existing studies highlight the serious nature of these incidents. Residents have been known to leave their units or exit long-term care homes unsupervised, increasing the risk of falls and other injuries, including falls (Adekoya & Guse, 2019; Ali et al., 2016). Those with a history of falls are five times more likely to be institutionalized and face greater risks of severe injury or death (Fernando et al., 2017).

A systematic review by Woolford et al. (2017) examined outcomes of unexplained absences among long-term care residents, such as getting lost or leaving without staff knowledge. Across nine studies, 1,440 incidents were reported, resulting in 82 deaths and 61 injuries per 1,000 cases. The leading cause of death was exposure to extreme temperatures, with most individuals found within one mile (approximately 1.6 kilometers) of their last known location, often in vegetated areas or near bodies of water (Woolford et al., 2017). The review points to the need for a better understanding of dementia-related missing incidents and the development of effective prevention strategies to reduce the risk of harm or death among people living with dementia, including those living in long-term care homes.

2.4.2. Impact on Care Partners and Others

Missing incidents remain one of the most challenging aspects of dementia care. Missing incidents are particularly distressing for care partners, who often experience anxiety, stress, and emotional strain while balancing safety concerns with a relative's autonomy (Li et al., 2024; Shalev Greene et al., 2019). In some cases, families may never learn what happened to their

missing relatives, leading to ambiguous loss—an unresolved grief marked by the uncertainty of presumed but unconfirmed death (Taylor et al., 2019). Even when individuals return home, the process of reconnection can be slow, distressing, and emotionally challenging (Taylor et al., 2019).

In their study to develop and validate the MAPLe (Method for Assigning Priority Levels) algorithm for allocating home care resources using data from the Resident Assessment Instrument – Home Care (RAI-HC), Hirdes et al. (2008) identified caregiver distress as a key predictor of institutionalization. They noted that the breakdown of informal caregiving networks often leads to long-term care admission. The MAPLe algorithm incorporates clinical indicators such as wandering behaviour (which can lead to missing incidents), cognitive impairment, and functional decline, which are closely linked to increased caregiver burden and a higher risk of institutionalization. The study found that clients in the highest MAPLe risk category were significantly more likely to enter long-term care and have care partners experiencing distress (Hirdes et al., 2008). These findings emphasize the value of structured assessment tools for prioritizing home care resources and providing timely support to people living with dementia at risk of going missing and their care partners to potentially delay or prevent unnecessary institutionalization.

Despite the risks, care partners may hesitate to report missing persons with dementia due to fear of wasting police time or being judged by them and others (Shalev Greene et al., 2019; Yoo, 2024). Care partners may begin searching for missing relatives themselves before contacting police and may use strategies like identification tags, restricting movement by locking doors or preventing unaccompanied outings, or placing the person in long-term care (Murata et al., 2021; Shalev Greene et al., 2019; Yoo, 2024). These actions, while intended to prevent harm,

can significantly impact the individual's autonomy and well-being, and in extreme cases, may pose safety risks, such as during a fire (Yoo, 2024).

Missing incidents involving people living with dementia can be resource-intensive and financially burdensome (Taylor et al., 2019; Woolford et al., 2017). For care partners, costs may include lost income from time off work and expenses related to independent search efforts, such as hiring private investigators (Taylor et al., 2019). In long-term care settings, these incidents can lead to serious legal and reputational consequences, including regulatory penalties, lawsuits, and diminished trust from families. Long-term care homes face the complex task of ensuring resident safety while managing regulatory requirements, public perception, and emotional and financial impacts (Woolford et al., 2017).

Few studies have specifically examined the costs associated with dementia-related missing person investigations. Existing estimates suggest costs can range from $2,294 to $4,181 CAD in Canada (Neubauer, Miguel-Cruz, et al., 2021), £1,325.44 to £2,415.80 for medium-risk medium-duration incidents in the UK (Shalev Greene & Pakes, 2014), and approximately $1,500 USD in the US (Yang & Kels, 2016). Additionally, the cost of operating a standard search-and-rescue helicopter can add significant expenses, averaging $1,600 USD per hour (Neubauer, Miguel-Cruz, et al., 2021). However, these figures likely underestimate the true financial impact of such incidents. For example, the police time investment in medium-risk medium-duration, repeat missing person incidents—where multiple searches, shift handovers, and specialist coordination occur—often exceeds the actual time the person is missing, and these calculations do not include costs incurred by other agencies (Shalev Greene & Pakes, 2014). Additionally, indirect costs, such as community search efforts, care partner time off work, emotional impacts, and long-term healthcare needs, are typically not captured in these estimates. Thus, further

research is necessary to address the direct and indirect costs of dementia-related missing incidents to inform policy, resource allocation, and search protocols.

2.5. Strategies for Managing Risks of Going Missing

Strategies exist to mitigate risks associated with getting lost and going missing and facilitate the safe return of missing persons with dementia.

2.5.1. Awareness and Identification Programs

Awareness programs, such as the Alzheimer Society of Ontario's Finding Your Way™ in Canada, help individuals living with dementia, their families, and communities recognize and reduce the risk of going missing (Alzheimer Society of Ontario, n.d.). The program includes an identification (ID) form that can be filled out in advance with key personal details, enabling quicker responses from health care providers and first responders during emergencies.

The Safe Return program offered in the US by the Alzheimer's Association and Australia by Dementia Australia (MacAndrew et al., 2018; Petonito et al., 2013), and Canada's MedicAlert® (Medic-Alert Foundation Canada, n.d.) enhance identification by providing people living with dementia ID items—such as bracelets—with an emergency number. These programs allow community members to call for assistance if they encounter the person and enable police to quickly notify care partners when the individual is found (MacAndrew et al., 2018; Medic-Alert Foundation Canada, n.d.).

2.5.2. Environmental Strategies

Creation of supportive environments to enhance wayfinding and reduce the risk of people living with dementia getting lost or going missing has been widely recommended. Research shows that with appropriate environmental support, people living with dementia can learn to navigate new environments (Davis & Weisbeck, 2016; Kuliga et al., 2021; Marquardt, 2011). For example, strategies such as straight, undifferentiated hallways or simple, small-scale layouts with clear visual accessibility and minimal decision points can reduce spatial disorientation and improve wayfinding (Kuliga et al., 2021; Marquardt, 2011). Davis and Weisbeck (2016) report the importance of visual cues—such as colourful, familiar, and personally meaningful objects placed at decision points (hallway intersections or room entrances)—to enhance room recognition and navigation.

Personalized elements such as portraits, name signs, memory boxes, and high-contrast lighting can support orientation for people living with dementia, particularly in health care settings (Davis & Weisbeck, 2016). Further, wayfinding cues such as landmarks and signage and the presence of others can promote independent navigation and autonomy, ultimately enhancing quality of life for individuals living with dementia (Davis & Weisbeck, 2016; Kuliga et al., 2021; Marquardt, 2011).

2.5.3. Locating Technologies

Locating technologies such as global positioning system (GPS) enabled devices and radio frequency identification (RFID) devices—commonly designed as wearable tags or watches—are used increasingly to help locate missing persons (Bantry-White, 2018; Doyle et al., 2024; Neubauer et al., 2018). These technologies transmit real-time location data to a care partner's

smartphone or computer, supporting faster and more efficient searches (Bantry-White, 2018; Neubauer et al., 2018). The literature extensively documents the use of GPS devices, showing their potential to promote safety, support independence, and maintain autonomy for people living with dementia (Bartlett et al., 2019; Doyle et al., 2024; Neubauer et al., 2018).

Bartlett et al. (2019) conducted a synthesizing review on GPS technologies and found that these devices can improve well-being and reduce caregiver stress by enabling more independent outdoor activity. However, they also identified several limitations of GPS technologies, including discomfort, poor design, limited access due to cost, and ethical concerns surrounding consent and control. In many situations, care partners—not individuals living with dementia—make decisions about the use of GPS devices, raising important issues related to autonomy, privacy, and dignity. The review underscores the need for person-centered, rights-based implementation of GPS devices and greater inclusion of people living with dementia in both decision-making and research (Bartlett et al., 2019).

Similarly, Liu et al. (2017) examined the acceptance of GPS technology among individuals with dementia and their caregivers and report high GPS devices acceptance due to the technology's ability to enhance the independence of people living with dementia and provide care partners with peace of mind. Perceived usefulness and social influence were key predictors of intention to use, while ease of use was less influential, suggesting users prioritized benefits over usability. Despite some technical issues like false alarms and battery life concerns, it was reported that participants overwhelmingly supported continued use of GPS devices (Liu et al., 2017).

Recent evidence from Doyle et al. (2024) supports the potential benefits of GPS technology while acknowledging ongoing challenges. In their mixed-methods feasibility study involving wearer–carer dyads, the use of GPS devices was associated with reduced caregiver anxiety, increased independence for the person living with dementia, and delayed entry into 24-hour care. Care partners valued features such as real-time tracking, fall alerts, and two-way communication, reporting an overall positive impact on safety and peace of mind. However, the study also reports usability issues, including the need for care partner oversight and difficulties for some wearers in operating the devices, particularly those in more advanced stages of dementia (Doyle et al., 2024). These findings reinforce the importance of ensuring that GPS technologies are not only accessible and functional but also ethically implemented, with appropriate support for both care partners and individuals living with dementia.

Other studies have noted that GPS devices remain underutilized due to technical limitations (e.g., battery life, location inaccuracies), usability concerns (e.g., being too heavy or uncomfortable) (Petonito et al., 2013; Yoo, 2024), and ethical concerns around violation of privacy rights and the need to balance safety with autonomy, privacy, and dignity (Liu et al., 2022; Robinson et al., 2007; White et al., 2010). Moreover, high purchase and subscription costs continue to present barriers for many families (Martin & Jones, 2025; Neubauer, Miguel-Cruz, et al., 2021), and robust, large-scale evidence of effectiveness remains limited (Bartlett et al., 2019; Doyle et al., 2024; MacAndrew et al., 2019).

Based on the preponderance of evidence, while concerns about balancing safety with privacy and dignity in the use of locating technologies are valid and important, it is essential to find an approach that carefully weighs these considerations without disregarding either. The literature extensively documents the benefits of locating technologies—particularly GPS

devices—in enhancing safety, supporting the independence and autonomy of people living with dementia, as well as providing peace of mind to care partners. A balanced approach is essential, requiring thoughtful system design that effectively addresses privacy concerns while integrating data protection measures and informed consent processes. This approach can ensure that the dignity and rights of people living with dementia remain a priority, while still harnessing the protective and supportive benefits of locating technologies.

2.5.4. Organizational and Police Strategies

Some organizations, including police services, have adopted different strategies such as missing person registries, hotlines, and educational tools to support individuals and families (Morewitz, 2016). Long-term care homes and hospitals may implement policies, procedures, and safety measures, including alarms or locked doors, to help identify and reduce the risk of people living with dementia going missing (Adekoya & Guse, 2019; Morewitz, 2016).

Police strategies for locating missing persons with dementia vary and are shaped by factors such as geography, demographics, and resource availability (Yoo, 2024). For example, in Canada, some municipal police services operate Vulnerable Person Registries with programs such as MedicAlert® or Project Lifesaver® to assist in locating missing persons with dementia quickly (Halton Regional Police, n.d.; Toronto Police Service, 2025). These registries allow care partners to provide police with key information (e.g., physical description, behaviours, specific needs) about a person living with dementia to support emergency response efforts (Halton Regional Police, n.d.; Public Safety Canada, 2015).

Although Vulnerable Person Registries are intended to improve safety and facilitate positive communication between police and “vulnerable” individuals at risk of going missing,

their effectiveness remains unclear, as they have not yet been evaluated (Public Safety Canada, 2015). There is a need to explore more robust data sources, such as interRAI Home Care (interRAI HC) assessments. InterRAI assessments are regularly completed by health care professionals using multiple information sources, including direct observation, interviews, clinical records, and family input, and have demonstrated psychometric validity (Cruz et al., 2024). These assessments provide valuable insights into home care clients at risk of critical wandering and can support risk management and timely information sharing with first responders. Since most missing incidents involving people living with dementia occur in community settings, leveraging interRAI assessments could enhance coordination between home care services and police (Cruz et al., 2024). Additionally, using interRAI systems in jurisdictions where they are already implemented could help avoid redundant costs associated with maintaining separate vulnerable person registries (Cruz et al., 2024).

Another proactive tool is the Herbert Protocol in Scotland (Police Scotland, 2025), which is a form that care partners use to record a person's medical history, routines, frequently visited places, and previous missing incidents (Police Scotland, 2025). This document helps police respond more efficiently to missing persons with dementia by enabling care partners to precompile critical information.

Additionally, practices such as the use of social media platforms (e.g., Facebook and X) have been adopted by police services in countries including Australia, Canada, Malaysia, and New Zealand, to inform the public about missing persons with dementia and involve them in search efforts (Neubauer, Miguel-Cruz, et al., 2021; Tsoi et al., 2018). Other strategies include the use of technologies such as GPS and RFID devices, aerial support like drones and helicopters

(Neubauer, Miguel-Cruz, et al., 2021), search dogs, and traditional methods such as foot patrols and closed-circuit television (CCTV) analysis (Yoo, 2024).

Yoo (2024) conducted a qualitative study on the experiences of specialized police officers in South Korea searching for missing persons with dementia. The study identified several key challenges, including delayed reporting by care partners, unpredictable behaviours of missing individuals living with dementia, and limited collaboration during searches. Despite access to tools such as GPS device trackers and drones (Neubauer, Miguel-Cruz, et al., 2021), police officers typically rely on traditional search methods due to legal and technological constraints (Yoo, 2024). For example, in South Korea, existing laws only provide search and rescue support to individuals with formal dementia diagnoses and exclude those in earlier stages of dementia. This gap highlights the need for care partner education, community engagement, and policy reforms to enhance both prevention and response to missing incidents (Yoo, 2024).

2.5.5. Alert Systems

Alert systems have been proposed to engage the community in locating missing persons with dementia, providing extra eyes on the ground and supporting search and rescue efforts (Neubauer, Daum, et al., 2021; Rowe et al., 2011). Alert systems utilize technology, including media outlets, wireless emergency networks, traffic signs, social media, or apps to broadcast information (e.g., name, age, photo, physical descriptions, medical conditions) about missing persons with dementia (Adekoya et al., 2021; Gergerich & Davis, 2017).

In Canada, when a person living with dementia goes missing, police services alert the public about a missing person using social media such as Facebook and X, and not an emergency alert system like an Amber Alert (Adekoya, Daum, Neubauer, et al., 2025). Amber Alert notifies

the public about missing abducted children using the National Public Alerting System known as Alert Ready. Alert Ready, Canada's emergency alert system delivers critical and potentially life-saving alerts (e.g., floods, tornados, chemical spills, fire) to Canadians through television, radio, and compatible wireless devices connected to high-speed mobile broadband services, such as LTE (Long-Term Evolution) or newer networks (e.g., 5G) (Government of Canada, 2024). Amber Alerts are not appropriate for missing persons with dementia, as these incidents typically do not involve a crime and occur far more frequently than missing children. Overusing this type of alert, which is automatically pushed to people in a geographic area, could lead to public desensitization and reduced responsiveness to alerts (Adekoya et al., 2021).

The most common alert systems to help locate missing persons with dementia include community-based and public or state-wide alert systems which are discussed in the next section.

2.5.5.1. Community-based Alert Systems

In Sweden and some parts of the United Kingdom, Safeland is a mobile or web app that enables community members to share information about emergencies, monitor their neighbourhoods, such as keeping an eye out for missing persons, and reporting criminal activities (Reynald, 2019). In Canada, the Community ASAP mobile app was designed to engage community, businesses, and police in locating individuals with cognitive impairments (Neubauer, Daum, et al., 2021). However, the app is currently inactive due to implementation challenges (Neubauer, Daum, et al., 2021). Scotland's Purple Alert enabled care partners to alert community when a person living with dementia went missing, fostering community-based response (Adekoya et al., 2021). Despite its innovative approach and perceived popularity and

acceptance, the app was recently discontinued, likely due to challenges related to long-term sustainability and limited evidence on impact (Alzheimer Scotland, n.d.).

2.5.5.2. Public or State-wide Alert Systems

Public or state-wide alert system such as the US Silver Alert is one of the most common alert systems used by police services to notify the public about missing persons with dementia or cognitive impairments (Gergerich & Davis, 2017). Silver Alert, first launched in 2006 and modeled after the Amber Alert system, has been implemented in all but five states (Gergerich & Davis, 2017; Ruppalt, 2020). Unlike Amber Alerts, however, Silver Alerts do not automatically send notifications to mobile phones.

Research on the effectiveness of alert systems is limited, with few recent studies available. While some studies report that the US Silver Alert has been successful in helping locate missing persons with dementia (Gergerich & Davis, 2017; Gier & Kreiner, 2020; Yamashita et al., 2013), others raise concerns about its overall impact and question the extent to which community involvement contributes to successful outcomes (Gergerich & Davis, 2017; Yamashita et al., 2013).

2.6. Ethical and Legal Concerns in Alert Systems

The use of alert systems to locate missing persons with dementia raises important ethical and legal concerns, yet few studies have examined these issues in depth. Alert systems involve the public disclosure of personal information, including names, ages, physical descriptions, and medical conditions, which can have profound implications for the privacy of individuals involved (Gergerich & Davis, 2017; Ruppalt, 2020).

One primary concern in the use of alert systems is balancing safety, autonomy, and privacy (Adekoya, Daum, Neubauer, et al., 2025; Gergerich & Davis, 2017; Liu et al., 2022). Alert systems are designed to enhance community engagement in locating missing persons, thereby promoting safety. However, the public disclosure of personal information can infringe on an individual's autonomy and privacy rights, highlighting the need to balance these concerns (Adekoya, Daum, Neubauer, et al., 2025; Gergerich & Davis, 2017). Public disclosure of personal information, particularly medical conditions such as dementia, can lead to stigmatization (Adekoya, Daum, Miguel-Cruz, et al., 2025; Adekoya, Daum, Neubauer, et al., 2025; Ruppalt, 2020). People living with dementia may face negative societal perceptions, which can affect their self-esteem and sense of social belonging. Stigma can also deter families from seeking help (Neubauer et al., 2018), due to fears of judgment or embarrassment, while care partners frequently experience guilt and emotional stress, adding further complexity to the situation (Adekoya, Daum, Miguel-Cruz, et al., 2025; Ruppalt, 2020).

Another concern in the use of alert systems is that publicly disclosing medical conditions or other personal details can make individuals, particularly those with cognitive impairments, vulnerable to scams, identity theft, and other forms of exploitation (Adekoya, Daum, Miguel-Cruz, et al., 2025; Ruppalt, 2020). The permanent nature of online data and its potential misuse by malicious actors further amplifies these risks (Adekoya, Daum, Miguel-Cruz, et al., 2025).

Informed consent is important in the use of alert systems. Research shows that conversations about consent are often delayed or entirely absent (Adekoya, Daum, Miguel-Cruz, et al., 2025; Ruppalt, 2020), especially if the person living with dementia is still capable of providing consent (Gergerich & Davis, 2017; Liu et al., 2022). A lack of informed consent can undermine individual autonomy and contribute to stigma, emphasizing the need for early,

inclusive discussions around the use of alert systems (Adekoya, Daum, Miguel-Cruz, et al., 2025; Ruppalt, 2020).

While the use of alert systems to locate missing persons with dementia raises significant ethical and legal concerns—particularly around balancing safety, autonomy, and privacy—these concerns require careful consideration rather than dismissal. It is recommended to approach these concerns through open, timely, and honest conversations between people living with dementia, their care partners, and health care professionals, especially at the time of diagnosis. Such early discussions can help navigate and balance competing priorities in a way that respects individual rights while promoting safety. However, given the limited empirical research on these ethical and legal concerns specifically within the context of alert systems, there is a pressing need for further studies that prioritize the perspectives and experiences of end users.

2.7. Theoretical Frameworks

This dissertation draws on two theoretical frameworks, the Knowledge-to-Action (KTA) Framework (Graham et al., 2006) and Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009), to examine the development and implementation of alert systems for missing persons with dementia. The use of multiple frameworks to study program interventions can offer a comprehensive understanding of complex implementation processes and can help researchers address different study purposes, levels of analysis, and degrees of theoretical depth and applicability (Birken et al., 2017; Moullin et al., 2020). Depending on factors such as study goals, the need to examine influences on outcomes (e.g., barriers and facilitators), or to evaluate implementation efforts, applying more than one framework may be useful or necessary (Moullin et al., 2020). In this dissertation, both frameworks were selected

to explore the complex nature of alert system implementation and to provide complementary insights. They supported a deeper understanding of the conditions influencing implementation and use, as well as the contextual factors—both facilitators and barriers—that shape these processes. Both frameworks will be discussed in the sections below.

2.7.1. The Knowledge-to-Action Framework

Knowledge translation remains a central challenge in bridging the gap between research and practice. To address this gap, the Knowledge-to-Action (KTA) Framework (refer to Figure 1 in Chapter 6, page 93), a conceptual framework proposed by Graham et al. (2006) helps translate knowledge into practical application and policy. The framework describes the knowledge translation process as iterative and complex and has two main components: Knowledge Creation and the Action Cycle, each comprising of phases (Graham et al., 2006). Knowledge Creation is a funnel-like process where raw data is generated and refined into actionable tools, such as systematic reviews, guidelines, and decision aids for end-users. The Action Cycle leads to implementation or the application of knowledge in practice through seven stages: (1) identifying the problem, and identifying, reviewing, and selecting knowledge to implement; (2) adapting knowledge to local context; (3) assessing barriers to knowledge use or uptake; (4) selecting, tailoring, and implementing interventions; (5) monitoring knowledge use: (6) evaluating outcomes; and (7) sustaining knowledge use.

The KTA Framework, particularly the Action Cycle, employed in this dissertation underscores the necessity of grounding continuing interventions in the best available knowledge and employing effective strategies for knowledge transfer. It emphasizes the importance of adapting interventions to address specific contexts and barriers, ensuring that the knowledge

remains relevant and actionable. Continuous monitoring and evaluation are essential for assessing the effectiveness of knowledge application and making necessary adjustments (Graham et al., 2006).

The KTA framework is widely used in implementation studies across healthcare and research settings to guide the design, implementation, and evaluation of implementation activities (Milat & Li, 2017; Moore et al., 2022). However, to date, it has not been applied to examine the gap between research and practice in the implementation of alert systems. In this study, the KTA framework is particularly valuable in highlighting the importance of collaboration among researchers, service providers, policymakers, and end users. Application of the KTA framework supports a deeper understanding of how alert systems and related policies are implemented and helps identify key barriers and facilitators. This, in turn, can inform the selection of effective implementation strategies and support impact evaluation.

2.7.2. The Consolidated Framework for Implementation Research

The Consolidated Framework for Implementation Research (CFIR), a meta-theoretical framework, identifies 39 constructs that are formulated within five domains (Damschroder et al., 2009) (refer to Table 4 in Chapter 7, page 124). These five domains influence intervention (program) implementation: Intervention characteristics (e.g., stakeholders' perceptions of the advantage of implementing the intervention and cost); outer setting (e.g., external policy and incentives); inner setting (e.g., implementation climate and readiness for implementation); characteristics of individuals involved (knowledge and beliefs about the intervention and individual identification with organization); and the process of implementation (planning, engaging appropriate individuals, reflecting and evaluating) (Damschroder et al., 2009). The

CFIR helps explain why implementation is effective in a specific setting and not in another (Damschroder et al., 2009; Kirk et al., 2015).

The CFIR can be used to evaluate the implementation of complex health care delivery interventions. It provides a comprehensive framework for systematically identifying factors that may arise in different multi-level contexts to influence implementation, and findings can be used to inform stakeholders on improvements to the intervention and its implementation (Keith et al., 2017). The CFIR can also be used to guide the development of data collection methods such as an interview guide or a codebook as well as analyzing, interpreting, and reporting findings related to implementation (Kirk et al., 2015).

Many studies have applied the CFIR to examine stakeholder experiences, barriers, and facilitators in implementing technology-based interventions for people living with dementia and their care partners, such as social robots (Koh et al., 2021), web-based education (Levinson et al., 2020), and communication tools (Smith et al., 2022). However, no known studies have used CFIR to examine the implementation of alert systems.

2.8. Summary and Rationale

People living with dementia are at heightened risk of going missing due to a complex interplay of factors, including cognitive impairments such as memory loss, disorientation, and confusion (Perez et al., 2024; Rowe et al., 2015). Missing incidents often occur during routine activities such as walking or driving and can be exacerbated by environmental triggers such as poorly designed spaces, harsh lighting, excessive noise, and fluctuations in temperature or humidity (Miguel-Cruz et al., 2024; Perez et al., 2024). Missing incidents may be preceded by confusion or agitation and, while many individuals are found safely, others may experience

serious injury or death (Bantry White & Montgomery, 2015; Larsson et al., 2025). These events are not only distressing for the individuals themselves but also traumatic for their care partners, often leading to caregiver burden, emotional distress, and in some situations, premature institutionalization of persons living with dementia (Li et al., 2024; Shalev Greene et al., 2019). There is also a misconception that persons with dementia residing in long-term care homes do not go missing (Kowalski, 2020; Miguel-Cruz et al., 2024).

To mitigate the risk of going missing, various strategies exist, including awareness and identification programs, environmental modifications that support wayfinding, wearable locating technologies, and Vulnerable Person Registry (Davis & Weisbeck, 2016; Doyle et al., 2024; MacAndrew et al., 2018; Toronto Police Service, 2025). Despite these strategies, there remains a need to enhance community-level responses. Alert systems have been proposed as a promising strategy to enlist the public's help by broadcasting alerts through media and mobile applications, thereby supporting search efforts with broader community engagement (Gergerich & Davis, 2017).

Despite growing public support and the potential of alert systems such as Silver Alert (US), Purple Alert (Scotland), and BC Silver Alert (Canada) in locating missing persons, little is known about how these systems are implemented or what factors influence their success (Adekoya et al., 2021; Gergerich & Davis, 2017). There is limited research on how to measure the effectiveness of alert systems or assess their broader impact (Gier et al., 2017). In particular, Canada lacks a national strategy or consistent provincial- or municipal-level adoption of such systems. As policy influences implementation and implementation is shaped by complex, multi-level factors (Hudson et al., 2019), an understanding of the conditions under which alert systems and related policies are developed, implemented, and sustained would inform practice. In the

context of this study, the term policy is used broadly and includes legislation, bills, regulations, standards of practice, and strategic planning efforts undertaken by both governmental and non-governmental organizations (O'Brien et al., 2020).

Implementation research helps close the gap between knowledge and practice by examining how and why interventions work in real-world settings, helping translate intentions into effective actions across diverse contexts (Peters et al., 2014; Theobald et al., 2018; Wensing & Grol, 2019). Implementation research identifies barriers and facilitators, informs context-specific strategies, so that interventions are effective, equitable, and scalable and improve health services and outcomes (Theobald et al., 2018; Wensing & Grol, 2019).

While some studies have acknowledged the promise of alert systems, their adoption remains slow and fragmented (Adekoya et al., 2021; Neubauer, Daum, et al., 2021). Without a clear understanding of what drives or impedes their implementation and effectiveness, alert systems risk limited uptake and adoption to prevent harm. Moreover, user experiences—including those of people living with dementia, care partners, first responders, service providers, and policymakers—remain underexplored (Adekoya et al., 2021). Users' insights are essential to designing responsive, person-centered alert systems that are trusted, accessible, and effective.

This dissertation addresses the gap in our understanding by examining the development and implementation of alert systems and related policies for missing persons with dementia across multiple jurisdictions—Canada, Scotland, and the US. Guided by the KTA framework and CFIR, this dissertation explores under what conditions alert systems are implemented, what contextual factors influence their implementation, and how they are experienced by different stakeholders. In doing so, this research provides a more comprehensive understanding of the

alert system implementation and offers practical guidance for improving the design, adoption, and effectiveness of alert systems.

By bridging the gap between research, policy, and practice, this dissertation seeks to inform the development of robust, sustainable alert systems that enhance the safety, dignity, and well-being of people living with dementia. The findings have the potential to shape local, national, and provincial responses to dementia-related missing incidents, transform policy implementation, and ultimately contribute to a safer, more responsive alert systems.

Chapter 3: Research Objectives

This dissertation comprises three studies aimed at examining the development and implementation of alert systems and related policies for locating missing persons with dementia at local, municipal, provincial, and national levels in Canada, Scotland, and the US. Each study was guided by specific objectives tailored to address distinct aspects of this overall aim.

Specific Objectives

Study 1: Alert systems for people living with dementia who go missing: Case studies in Canada, Scotland, and the United States

The objective of study 1 was to explore user experiences with alert systems and policies for missing persons with dementia, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts.

Study 2: Locating missing persons with dementia: Using Knowledge-to-Action Framework for implementation of alert systems

The objective was to understand the conditions surrounding the implementation and use of alert systems, including potential barriers, by applying the Knowledge-to-Action Framework to bridge research and practice for effective knowledge translation.

Study 3: Factors influencing implementation of alert systems for locating missing persons with dementia using the Consolidated Framework for Implementation Research

The objective was to understand factors that may arise across various multi-level contexts to influence implementation of alert systems for locating missing persons with dementia using

the Consolidated Framework for Implementation Research to guide data collection and a systematic, comprehensive analysis of these factors.

Chapter 4: Methodology and Methods

4.1. Overview

This dissertation explored the implementation of alert systems and related policies for locating missing persons with dementia through three studies that all shared common methods in terms of study design, settings, participants, and data collection. However, they differed in their analytical approaches. Data analysis for Study 2 data was guided by the KTA framework while data collection and analysis for Study 3 was guided by the CFIR.

This section provides detailed descriptions of the methodology and methods used in this dissertation, including a statement on researcher positionality.

4.2. Study Design

Data for the three studies were derived from a multiple case study approach (Yin, 2018), which offered valuable insights into the implementation of alert systems, including the facilitators and barriers encountered across different contexts (Gustafsson, 2017; Hamilton & Finley, 2019) in Canada, Scotland, and the United States. This approach is suitable for exploring complex, real-world cases, particularly in areas where interventions are under-researched or inconsistently applied (Yin & Campbell, 2018). This approach also facilitated comparisons of alert system implementation across varied geographic and policy contexts, while remaining rooted in the lived experiences of stakeholders.

With respect to methodology, this research is grounded in a constructivist epistemological paradigm, which prioritizes understanding experiences within their specific contexts and values diverse perspectives (Harrison et al., 2017). It emphasizes the co-construction of knowledge through individual experiences, social interactions, and contextual understanding. Recognizing that multiple realities are co-created by researchers and participants (Yin, 2018), this research adopted a relativist stance to explore the complex nature of alert system implementation. Incorporation of the voices of diverse stakeholders, including people with lived experience, was vital to fully capturing the multifaceted realities influencing the implementation and use of alert systems for missing persons with dementia. In addition, the inclusion of policy document analysis allowed for a deeper understanding of the broader structural and contextual factors surrounding implementation and offered a more comprehensive and nuanced perspective.

The remainder of this chapter describes the methods or procedures used in the three studies.

4.3. Ethics Approval

Ethics approval was obtained from the University of Waterloo Research Ethics Board (REB #44542), University of Edinburgh (CNST149), and the Waterloo Regional Police. No additional ethics approval was required from other organizations, including Alzheimer Scotland and the US National Association for Search and Rescue.

All participants gave written or verbal informed consent (see Appendices A and B). They were made aware of their voluntary involvement and their right to withdraw consent at any point. Individuals with mild cognitive impairment or mild dementia, who were recruited through our

professional networks, were able to give consent independently, without needing legal guardians. A teach-back method was used to evaluate their capacity to participate in one-on-one interviews, which included open-ended questions regarding the study (Holtz & Byrdsong, 2020). As a token of appreciation for their time and contribution to the study, individuals living with dementia and care partners were offered a $25 or £25 Amazon e-gift card (AGE-WELL, n.d.).

4.4. Study Settings and Participant Recruitment

Study settings spanned multiple provinces in Canada, counties in Scotland, and states in the United States where alert systems for missing persons with dementia were either developed, implemented, or currently under consideration. Participants represented a range of stakeholder groups involved or interested in, or knowledgeable about alert systems, including BC Silver Alert, Purple Alert, and US Silver Alert programs. These included individuals living with dementia, care partners, first responders, service providers, including health care professionals, technology developers, policymakers, and researchers.

To capture diverse and informed perspectives, purposive sampling (Polit & Beck, 2017) was used to recruit individuals with either direct experience or professional expertise related to missing persons and alert systems. Snowball sampling was also employed, enabling participants to refer others, particularly those with relevant knowledge, interests, or experiences (Naderifar et al., 2017).

Recruitment was done through professional networks and partner organizations, such as Alzheimer Societies, dementia advocacy groups, police and search and rescue organizations. Recruitment materials (see Appendices C, D, and E) were shared via email and social media platforms including LinkedIn and X (formerly Twitter). Some participants had prior connections

with the research team, while others were newly engaged through outreach efforts. Recruitment of the right stakeholders was essential to ensure that the study captured a wide range of perspectives, particularly from those directly involved in the development, application, or lived realities of alert systems. Involvement of individuals with lived experience, as well as those who regularly work with missing persons with dementia and their care partners, was especially important to ground the study in practical, real-world experiences. This approach helped ensure the findings were meaningful, applicable, and reflective of the diverse needs and challenges surrounding the implementation and use of alert systems.

Inclusion criteria included: 1) Having experience (experiential or professional) with, or interest in, the development, implementation, or use of alert systems such as BC Silver Alert, Purple Alert, and the US Silver Alert and related policies, and 2) the ability to answer questions and communicate (read and speak) in English. Participants were asked to self-report their familiarity or involvement with alert systems. Individuals with insufficient knowledge of the topic or inability to articulate perspectives due to moderate or severe cognitive impairment affecting information processing and language comprehension were excluded. Of the 41 individuals who met the inclusion criteria and consented to participate, one was excluded due to concerns about identity misrepresentation, as detailed in the Data Collection section.

A total of 40 individuals participated in the study, see Table 1 for demographics: 20 (50%) identified as female, 19 (47.5%) as male, and 1 (2.5%) as non-binary. Their ages spanned from 25 to over 75 years, with the highest proportion in the 45-54 years age group. The participants included people living with dementia (n=5), care partners (n=5), service providers (n=6), first responders (search and rescue and police) (n=17), policymakers (n=5), a technology developer (n=1), and a researcher with expertise in dementia care (n=1). The majority of

participants identified as White (n = 34), while the remaining participants identified as East Indian, Chinese, or of mixed ethnic backgrounds. Of the 40 participants, 20 were from Canada, 10 from Scotland and 10 from the US.

Table 1. Participant demographics

Descriptive characteristics	n (%) (Total N = 40)
Age (years)	
25-34	2 (5)
35-44	6 (15)
45-54	15 (37.5)
55-64	8 (20)
65-74	7 (17.5)
75+	1 (2.5)
Not disclosed	1 (2.5)
Sex	
Male	20 (50)
Female	19 (47.5)
Non-binary	1 (2.5)
Ethnicity	
White	34 (85)
Mixed ethnicity	3 (7.5)
Chinese	2 (5)
East India	1 (2.5)
Role/Title	
Person living with dementia	5 (12.5)
Care partner	5 (12.5)
First responder (search and rescue, police)	17 (42.5)
Service provider	6 (15)
Policymaker	5 (12.5)
Researcher	1 (2.5)
Technology developer	1 (2.5)
Country/Province	
Canada	
British Columbia	10 (25)
Ontario	10 (25)
Scotland (United Kingdom)	

Aberdeen	1 (2.5)
Edinburgh	7 (17.5)
Glasgow	2 (5)
United States	
California	1 (2.5)
Florida	1 (2.5)
New Hampshire	1 (2.5)
New Jersey	1 (2.5)
Texas	1 (2.5)
Virginia	3 (7.5)
Washington	1 (2.5)
Wisconsin	1 (2.5)

4.5. Data Collection

Data collection occurred over two phases between November 2023 and December 2024, using a multiple qualitative methods approach that included semi-structured interviews, focus groups, and a policy document review.

Phase 1: Individual Interviews

A total of 41 semi-structured, one-on-one interviews were conducted either in person, such as at participant's workplace, or virtually via Zoom. Refer to Table 2 for a summary of the interview timeline. One participant, who identified as under 30 and living with mild dementia, was excluded from the analysis due to several concerns. She declined to turn on her camera, provided vague or inconsistent answers, and her responses closely resembled content from a document published by the research team. Due to concerns about identity misrepresentation, her data were omitted despite receiving compensation.

Each of the remaining participants was interviewed once, with sessions lasting between 36 to 130 minutes. An interview guide, which included demographic and open-ended questions, was utilized to elicit participants' perspectives and experiences with alert systems. During the interviews, key terms (e.g., alert systems and policies), were defined and probing questions were used to clarify responses and enhance clarity. Though not pilot tested, the development of the interview guide was informed by the CFIR and reviewed by the researcher's committee members (see Appendix F).

Phase 2: Focus Groups

To validate the interview findings, participants were invited to participate in online focus groups. See Table 2 for a summary of the focus group timeline. These sessions also aimed to expand upon the themes identified in the interviews, encouraging collaborative dialogue and a deeper interpretation of the data. A total of 25 participants (people living with dementia, care partners, service providers, first responders, policymakers, a technology developer, a researcher) took part in four focus groups, each lasting between 53 to 94 minutes and conducted via Zoom, with 5 to 8 participants in each group. The remaining participants provided feedback by email or Google Forms. Prior to the sessions, a summary of findings was shared with participants through email. Discussions regarding the findings took place during the focus groups.

Table 2. A summary of interview and focus group timelines

Country/Province	Interview Period	Focus Group Period
Scotland	November 7 – 24, 2024	February 19, 2024
Canada		
BC	February 22 – September 21, 2024	October 22, 2024
ON	March 26 – July 23, 2024	September 27, 2024
United States	Feb 28 – December 2, 2024	December 13, 2024

All interviews and focus groups were conducted by the researcher, who explained the purpose of the research and obtained verbal or written consent from participants before proceeding. Observations were recorded in field notes and reflexive notes, while the interviews were captured through audio-visual recordings and transcribed using technology-based transcription services. The transcripts were verified for accuracy, and participants were assigned numbers to ensure anonymity and confidentiality.

Policy Document Review

In parallel, relevant policy documents, including bills, legislation, and procedures, associated with the development and implementation of BC Silver Alert, Purple Alert, and US Silver Alert system were examined (refer to Table 3, page 96). These documents were identified through an online search of both government and non-governmental websites, as well as recommendations or materials provided participants. This document analysis enriched the insights gained from interviews and focus groups, offering a more comprehensive understanding of the policy framework influencing alert systems for missing persons with dementia.

4.6. Data Analysis

Data were analyzed using a hybrid inductive-deductive thematic analysis approach (Braun & Clarke, 2006), supported by NVivo 12 and 14 (Lumivero) for data organization and management. The deductive analysis was guided by the Knowledge-to-Action (KTA) Framework (Graham et al., 2006) and the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009), specifically in Studies 2 and 3. The inductive analysis allowed the researcher to remain open to additional themes, which aligned with the implementation science frameworks (KTA and CFIR) used in this research.

The analysis followed the six phases outlined by Braun and Clarke: familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report (Braun & Clarke, 2006). This iterative process was well-suited for this research due to its theoretical flexibility and its capacity to capture rich, nuanced perspectives from diverse participant groups (Braun & Clarke, 2006; Nowell et al., 2017). Data familiarization began with listening to interview recordings, reading interview and focus group transcripts, and field notes, with the first author taking notes to gain initial insights into participants' experiences and perspectives. Coding was done inductively and deductively by the first author. The deductive component applied the KTA framework to identify barriers to the implementation and use of alert systems and the CFIR to identify multi-level factors influencing alert system implementation for missing persons with dementia. The inductive analysis allowed the researcher to remain open to identifying recurrent patterns, while paying attention to the research objectives. As coding progressed, related codes were grouped into broader themes that reflected shared perspectives across participants.

To enhance rigour and reflexivity, the researcher's supervisor independently reviewed transcripts and provided feedback on findings. The findings and interpretations were discussed with the other committee members in five meetings, where feedback was integrated, and themes were refined. Analysis continued until saturation was reached.

4.7. Field and Reflexive Notes

Observations, including key concepts and interpretations, were documented through both field notes and reflexive notes. Reflexive notes served to capture emerging ideas, emotional responses, personal impressions, challenges encountered during the research process, and any potential biases. These notes were also used to reflect on the interview process itself, considering how it might be improved and how to minimize response bias in the phrasing of questions. For instance, in one journal entry, I noted: "Having the knowledge of the risk of going missing has been helpful for the interviews, but it is also important to be open to learning new things and not making assumptions about what the participants were trying to convey—remaining open and continuing to use probes when needed." Reflexive journaling supports transparency and helps reduce subjectivity by encouraging researchers to critically examine their own positionality, assumptions, and influence throughout the research process (Ahmed, 2024).

4.8. Statement of Positionality

Our personal and professional experiences inevitably shape how we collect, interpret, and make sense of data. In this section, I describe my positionality as a qualitative researcher and how my experiences have informed the research design, process, and interpretation.

Positionality requires researchers to critically reflect on their assumptions and consider how their identity and experiences influence their approach. It involves acknowledging how one's biography and context shape the lens through which the social world is understood (Gurr et al., 2024). I acknowledge that my personal, professional, and research experiences have shaped my perspective as a researcher and contributed to the conceptualization of this dissertation from its early stages to data analysis.

As a young girl growing up in Nigeria, Africa, I was raised with the cultural belief that older adults are valued contributors to the community and that society holds a collective responsibility for their safety and well-being. Now, as a registered nurse with over 10 years of clinical experience in gerontology and a research trainee, I believe that older adults—including those living with dementia—have the right to receive high-quality care and maintain the best possible quality of life. I view individuals living with dementia as adults who deserve to live with dignity, autonomy, and meaningful independence. I recognize that my cultural beliefs, along with my clinical and research experiences, have shaped my identity and worldview.

There are benefits to my dual-role identity. My clinical experience and research knowledge helped generate relevant research questions, contributed insider knowledge, and built trust with participants, potentially encouraging honest engagement. This identity continues to motivate my commitment to disseminate findings in ways that are meaningful to the community (Hay-Smith et al., 2016). However, I recognize the “ethical vulnerability” that can arise from holding dual roles as both clinician and researcher (Adekoya & Guse, 2020; Hay-Smith et al., 2016). Rather than claiming expertise over participants' experiences, I approached this research with humility and openness—what has been described as a willingness to learn and be “taught by the other.” (Adekoya & Guse, 2020; Rhodes & Carlsen, 2018). This perspective shifts the

researcher from a one-sided expert to a learner, open to understanding people's differences without attempting to define them categorically (Rhodes & Carlsen, 2018).

I viewed myself as an "insider" in this research, given my knowledge and experience in dementia-related missing incidents and alert systems, and because some participants were already familiar with our research team. As a research assistant at the Aging and Innovation Research Program, University of Waterloo, under the guidance of my supervisor, I have collaborated with interdisciplinary teams and community partners, including people with lived experience, to co-develop resources and strategies aimed at reducing dementia-related missing incidents. My volunteer work with organizations such as the Alzheimer Society has deepened my understanding and empathy for people living with dementia and their care partners.

I remained aware that my interpretations of data could be shaped by my own experiences. Throughout the research process, I engaged in reflexivity, maintaining ongoing awareness of my role, assumptions, and potential biases (Gurr et al., 2024). I approached analysis with thoughtful impartiality—remaining open, respectful, and sensitive to participants' voices, and ensuring that their perspectives were represented as authentically as possible. My goal was to remain honest and genuine while balancing the need to share participants' stories truthfully, with objectivity and without judgment, in a way that honours their contributions (Gurr et al., 2024).

4.9. Study Rigour

Rigour in this study was ensured through the processes of credibility, transferability, dependability, and confirmability (Ahmed, 2024; Lincoln & Guba, 1985). Credibility—the extent to which findings reflect participants' reality and experiences—was supported through

reflexive journaling, member checking, peer debriefing during data collection and analysis, data triangulation, prolonged engagement with participants, and the inclusion of participant quotes. Transferability, or the applicability of findings to other contexts, was enhanced through detailed descriptions of the study design, participants, and research process (Ahmed, 2024; Lincoln & Guba, 1985). Dependability, referring to the consistency and reliability of findings over time, was maintained by clearly documenting all research methods and procedures. Confirmability, which increases the potential for findings to be corroborated by other researchers, was established through triangulation of data sources (documents, interviews, focus groups) and member checking by allowing participants to verify the accuracy of findings and interpretations, supported by the inclusion of participant quotes (Ahmed, 2024; Lincoln & Guba, 1985; Stahl & King, 2020).

The next chapter focuses on Study 1 which presents user experiences with alert systems and policies for missing persons with dementia, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts.

Chapter 5: Study 1

Alert systems for people living with dementia who go missing: Case studies in Canada, Scotland, and the United States

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5.1. Overview

Background: People living with dementia are sometimes at risk of going missing, which can result in injury or serious harm and cause distress for care partners. Alert systems can help locate missing persons and reduce risk through community engagement, yet little is known about implementation and user experiences.

Objective: This study explored user experiences with using alert systems and policies for missing persons with dementia, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts.

Methods: A multiple case study and policy document review were conducted. Data were collected through interviews and focus groups with 40 stakeholders (people with lived experience, first responders, service providers, policymakers) from Canada, Scotland, and the United States and analyzed thematically.

Results: Three key themes emerged: 1) implementing alert systems and policies, 2) experiences of going missing, and 3) factors that help or delay locating missing persons. Participants emphasized the importance of early stakeholder involvement, community buy-in, and legislative support for implementation. Challenges included sustainable funding and limited evaluation. The emotional impact of missing incidents highlighted the need for prompt police reporting, coordinated search efforts, tailored mobile alerts, and public education. While public involvement is essential, inaccurate tips could hinder a search.

Conclusion: According to study participants, effective alert systems would require geographic-specific mobile notifications and coordinated planning. Strong partnerships among first

responders, health care providers, and community organizations, supported by training and public education, can improve preparedness and support for people living with dementia and their care partners.

Keywords: Dementia, missing person, alert systems, care partners, case story, case study.

5.2. Background

With over 57 million people worldwide living with dementia (World Health Organization, 2025), the effort of keeping people safe from going missing is an increasing challenge. Individuals living with dementia, particularly those with Alzheimer's disease, are at increased risk of going missing due to cognitive impairments such as memory loss, confusion, disorientation, and difficulty navigating new or unfamiliar environments (Davis & Veltkamp, 2020; Ward et al., 2022).

The concept of going "missing" is complex—it can be intentional, such as a deliberate disappearance, or unintentional, resulting from factors such as accidents, dementia, or forced separation (Parr & Fyfe, 2013; Taylor et al., 2019). Missingness is defined from the perspective of the reporting person, that is, a person may not think of oneself as missing. This happens, for example, when plans change without informing others. Conversely, a person may feel lost—such as getting separated in a crowd or struggling to find the way home—without being deemed missing until the person fails to reach the expected destination within an accepted time (Greene et al., 2019). Ultimately, a missing person, whether absent intentionally or unintentionally, is someone whose whereabouts are unknown, and raises safety concerns for both oneself and others (Taylor et al., 2019).

Individuals living with dementia can go missing while engaged in routine activities with limited supervision (Miguel-Cruz et al., 2024), becoming separated from care partners during outings, or leaving home independently to complete familiar tasks (Taylor et al., 2019). If not found within 24 hours, half of those who go missing face serious risks, including hypothermia, drowning, vehicle accidents, or even death (Rowe et al., 2011). Managing dementia-related

missing incidents is one of the most challenging aspects of dementia care. Dementia-related 'suffering' extends beyond physical symptoms, impacting emotional and social well-being of both individuals and their care partners (Karlawish, 2025). Missing incidents are particularly distressing for care partners, who often experience anxiety, stress, guilt, and emotional strain while balancing safety concerns with their relative's autonomy (Greene et al., 2019; Li et al., 2024).

To reduce the risk of going missing and alleviate caregiver burden, care partners frequently use technologies such as Global Positioning Systems (GPS) devices to monitor the movements of their relatives (Doyle et al., 2024). In addition, organizations such as long-term care homes and hospitals often implement safety measures—such as door alarms and secured exits—to help prevent individuals living with dementia from leaving unnoticed (Adekoya & Guse, 2019; Morewitz, 2016). In Canada, many municipal police services support Vulnerable Person Registries with programs such as MedicAlert® to enable care partners to share essential personal information with police, aiding in the rapid location of a missing person with dementia (Halton Regional Police, n.d.; Toronto Police Service, 2025).

Another strategy for locating missing persons with dementia through community engagement is an alert system (Neubauer, Daum, et al., 2021). Alert systems notify the public about individuals living with dementia at risk of harm by sharing personal information (e.g., name, age, photo, physical description, and medical conditions) through media, emergency networks, traffic signs, social media, and apps (Gergerich & Davis, 2017). Various types of alert systems exist. For example, a community-based alert system like Scotland's Purple Alert app, enabled care partners to notify the community about missing individuals living with dementia, operated for seven years before it was discontinued (Alzheimer Scotland, n.d.) due to

sustainability issues. In the United States (US), state-wide Silver Alert systems allow police to share information about missing persons with dementia via highway signs and media (Gergerich & Davis, 2017).

In Canada, there has been calls for a national Silver Alert system, prompting national petitions and amendments to Missing Persons Acts in Ontario, Manitoba, and Alberta (Legislative Assembly of Alberta, 2023; Legislative Assembly of Manitoba., 2017; Legislative Assembly of Ontario, 2023; Parliament of Canada, 2018, 2025). British Columbia (BC) has a community-led Silver Alert which notifies subscribers about missing persons with dementia or autism using a preferred method, such as social media or a Short Message Service (BC Silver Alert, n.d.). In Canada, "Silver Alert" is frequently linked to the police's use of public and social media platforms (Adekoya et al., 2021).

However, little is known about alert system implementation and the experiences of stakeholders, especially those who have experienced going missing or those who live with someone who went missing and had to utilize alert systems. Unfortunately, most missing incidents go unreported to the police, resulting in underreporting because care partners typically view contacting the police as a last resort (Larsson et al., 2025). This study is part of a broader project examining the development and implementation of alert systems in Canada, Scotland, and the US.

The study in this chapter explored the experiences of stakeholders in Canada, Scotland, and the US, including those with lived experience, of going missing or being involved in search efforts, with the implementation and use of alert systems and related policies for missing persons with dementia.

5.3. Methods

Refer to Chapter 4, page 36 for methods.

5.4. Results

Findings from participants' experiences regarding the implementation and use of alert systems and related policies for missing persons with dementia are presented under three key themes: 1) Implementing alert systems and policies, 2) experiences of going missing, and 3) factors that help or delay locating missing persons. These insights are drawn from the narratives of individuals who have gone missing, their care partners, and those involved in search efforts.

The first key theme focuses on participants' experiences with implementing alert systems and related policies.

5.4.1. Implementing Alert Systems and Policies

Participants shared their experiences with implementing alert systems and related policies for locating missing persons with dementia, highlighting what worked and what did not. They emphasized that successful implementation of these systems starts with involving the right people early—a small, focused group with shared goals—to minimize conflicts, along with securing funding from government and non-governmental organizations. Community buy-in and funding were particularly crucial for implementing community-based alert systems such as the Purple Alert and BC Silver Alert, though sustainable funding remained a significant challenge. A care partner and service provider involved with BC Silver Alert described its implementation as "very grassroots" and highlighted funding challenges. The participant noted that the premier and some legislature members initially committed support for BC Silver Alert. However, a leadership

change and upcoming elections created uncertainty, requiring renewed efforts to secure funding for BC Silver Alert:

> "They [government] made a commitment that they would be supporting the Silver Alert. That premier resigned, and we have a new premier, and now there's an election session coming up in October." (P14)

A service provider involved in implementing Purple Alert also emphasized the importance of securing support from both the community as well as leadership, including the Scottish Government, Police Scotland, and service managers:

> "If the community don't buy in, then you don't have a community alert system. So, just like anything community based, you have to work with the community, and you can't impose anything on a community, you need to work with them from the outset, you need to go ask them, would you like to do this? And then you work with them because every community is different. I think you need to buy in from the community for a start. And you need to buy in from the top, without funding, you'll find that really difficult to develop the actual thing. You need buy in from top and from the bottom." (P2)

While some participants had positive experiences with implementation of the alert systems, others encountered both successes and challenges, highlighting the complexity of implementation. A service provider with experience in app design (P2) described the implementation of Purple Alert as "quite complex", involving about two and a half years of design and development, followed by six to eight months of small iterations and monitoring because of "bugs" in the app. The participant expressed that the unexpected popularity of the app's messaging feature fostered a sense of community and empowerment:

> “There were things that didn't quite work but there were also things that we didn't expect. There was a lot of people messaging within the app that we didn't think the messaging feature would be used that much.” (P2)

Another participant, a search and rescue volunteer, emphasized that the US Silver Alert implementation would not operate without legislative support and adequate funding:

> “We have good experiences and bad. Sometimes we worked through it and sometimes we don't. The thing that made it successful is the commitment of the legislator, the political person that that we connected with, that always drives whether we're going to successfully get an alert system or not. The family's message is important, but they don't have the money. It's the legislator believing that there is going to be some positive political value to them, which is important. It's finding the right legislator, I think, is the most important part that makes them successful.” (P23)

Participants also emphasized that effective policy and alert system development and implementation, whether national or local, must prioritize lived experience—listening to those directly affected, their care partners, and support organizations. A policymaker involved in the implementation of Purple Alert emphasized the importance of including people living with dementia and care partners in the development and implementation process. Reflecting on a key meeting, the participant shared: “So, there was somebody talking about why we should do this and that. One of the women with dementia said, that'll never work. So that was cut off.” She added,

> “We didn't waste any more time going over and over and talking about why we shouldn't and nobody was offended. She's like, that will not work, that's not going to happen. So having the people there was absolutely helpful.” (P6)

As noted by participants, engaging diverse voices and truly listening, rather than making assumptions, is crucial for implementations and meaningful change. A researcher specializing in policies and search training for people living with dementia, noted that while many police services were open to implementation of policies related to alert systems, some remained resistant:

> “In general law enforcement agencies were very concerned about their service to this population and generally adopted new policy recommendations and training opportunities readily. Only a few agencies were not open to changing their, generally flawed, policies.” (P12)

Participants raised the importance of multi-agency collaboration, especially police services, in implementing alert systems and related policies. They identified other organizations included in implementation of alert systems and related policies such as agencies providing emergency services, healthcare, social support, media, transportation, and education. However, the implementation of alert systems often lacked a formal evaluation process to measure their effectiveness. A search and rescue volunteer questioned this gap and highlighted the need for stronger evidence and clearer metrics to evaluate the impact of alert systems in locating missing persons with dementia:

> "How do you evaluate success? I guess the bottom line is, we found the missing [person]. The other part could be we've exhausted all efforts to locate the missing [person] because some never get found. But is that successful?" (P29)

In summary, under the first key theme, participants shared both positive and negative experiences in implementing alert systems and related policies for locating missing persons with dementia, highlighting what worked and what was perceived as a barrier to implementation. Factors that helped implementation included community support, organizational, and political buy-in, legislative support, multi-agency collaboration, early engagement of a small, focused group with shared goals, involvement of those with lived experience, and obtaining adequate funding. Challenges included difficulty securing funding, lack of political or legislative support, uncertainty caused by leadership changes, and a lack of evaluation process to demonstrate effectiveness of alert systems.

The second key theme of the findings discusses participants' experiences of missing incidents.

5.4.2. Experiences of Going Missing

This key theme presents the lived experiences of participants who either went missing themselves, cared for someone with dementia who went missing, or were directly involved in search efforts. Participants shared personal accounts of these incidents, often describing them as distressing, terrifying, and emotionally overwhelming—especially when they were not present at the time their relative went missing.

Eight stories are featured in this section, each offering a unique perspective on how the missing incident unfolded and the strategies used to locate the individual, including the use of alert systems. Some of these accounts ended in the safe return of the person, while others concluded in tragedy, or the missing persons were never found. Each story is titled to reflect the nature and emotional tone of the incident. All names are pseudonyms to maintain confidentiality and facilitate reader connection.

These stories were selected based on their relevance to the study's objectives and the participants' willingness to share their experiences in detail. Together, the stories illustrate the profound emotional impact missing incidents have not only on individuals living with dementia but also on their care partners and first responders.

The first three stories in this section describe experiences of going missing from the perspectives of individuals living with dementia.

Story 1: Joe lives with dementia and uses an alert app to assist in missing persons searches

Joe lives with dementia in Scotland and receives missing person notifications through the community-based Purple Alert app. He shared that he has participated in search efforts for people living with dementia who went missing in his community:

> "[The alert] comes off on our phones when someone goes missing in the area. If I happen to be going for a walk, I will keep my eyes open. But if it came off, I went for a walk, I keep an eye out. I know the locals, so if there's some out of place, I'd be wondering what they're doing. If the person looks lost and I'm going out and I could help, for instance."

Joe actively engages with the app to help locate missing individuals living with dementia and emphasizes the critical role community involvement in search efforts.

Story 2: Stanley lives with dementia and got lost while walking to the grocery store

Stanley from Canada recalled his experience of getting lost when walking, after missing a turn on the way to a grocery store. He expressed disappointment that no one noticed he was lost or stopped to offer help:

> "It was a nice sunny day; I have a specific route that I follow to my grocery store or pharmacy. And I don't know why, but on this particular day, I decided to turn down the street. And after a couple of minutes, I stopped. And I realized I didn't recognize the area. And I walked a little more, turned down another street. And then I was confused. And I basically sat down on the sidewalk to get my bearings and try and figure out what I'm going to do. And I was there for a couple of hours, actually. And the unfortunate thing is that people walked by me and did not stop and ask if I needed help, or if I was okay. They just went about their business."

Although Stanley's family was unaware he was lost, a neighbour eventually found him and helped him find his way back home. Stanley was familiar with using GPS device on his phone but had not brought his phone with him that day. Since the incident, he has made a habit of always carrying his phone when he is leaving home:

> "After a couple of hours, my neighbour came up and asked me why I was sitting on the sidewalk. And I told her that I wanted to go home. So, it turns out, I was only three blocks away from home, and I never made it to the pharmacy or to grocery store that day.

But it was very upsetting. The helplessness I felt was overwhelming. I didn't have my phone with me. And the only identification is like the MedicAlert® thing. If I had had my phone, I would be okay with that and use Google Maps to get on. So, from that day forward, I've never left home without my phone. It's like the American Express card, don't leave home without it."

Stanley is now an advocate for Silver Alert in Canada. He shared the importance of strategies such as Silver Alert, and wearable GPS devices either in a shoe or clothing to mitigate the risks of going missing and being able to quickly locate people living with dementia who have gone missing.

Story 3: Janet lives with dementia and went missing while driving

Janet lives in Canada and recounted getting lost for the first time while driving to a familiar location. She described this as a frightening and unsettling ordeal:

"I was driving somewhere and had a location in mind. All of a sudden, I couldn't recognize my environment. I didn't know what street I was on. I looked all around me, and I couldn't figure out what city I was in, so I was afraid. What I did for myself was I pulled over off the road into a parking lot. And I sat there, and I looked around and after a number of minutes of looking, I got out of my car and looked around me for indicators. And after about, I don't know, five minutes, something clicked in my head. And I knew why I was there. At first, I didn't know where I was going, or why I was there. Or even which direction like northeast south or west that I was going… It was really scary and that was the first time that had ever happened to me."

Janet explained that although her family was unaware she was lost, she managed to find her way by spotting the destination address in her car and using the map on her phone. She credited her hiking safety training for helping to stay calm and navigate the situation:

> "So, I searched for clues in my car. Do I have a pamphlet of something? But the reason I was there came back, the city came back. But I still didn't recognize my immediate environment. So, I found the address and turned on my phone and looked at a map. Then I saw a street name that I recognized, and then everything else clicked back together. It was quite scary, but I recovered from it. I go hiking and we have to learn safety things. I think all that, about keeping ourselves safe, and what to do if we do get lost while we're hiking, the training I think was really helpful. But it was the absolute sheer fright of the fact that number one, I didn't know where I was. And number two, it wasn't coming back to me. And it was really scary."

Janet expressed her support for implementing alert systems in Canada and believed that having a system similar to Amber Alert for missing persons with dementia would be helpful in locating missing persons quickly.

The remaining stories in this section describe experiences of missing incidents from the perspectives of care partners and first responders.

Story 4: Sam's husband, Eric, lives with dementia and went missing

Sam, a care partner from Canada, recounted the terrifying experience of her husband, Eric, going missing during her afternoon nap. She described the fear of not knowing where Eric

was or if he could keep himself safe, emphasizing that dementia affects people differently, including Eric whose cognitive abilities can fluctuate from day to day:

> "When my husband went missing, he was still in the early stages of dementia. So, we had been lying down for an afternoon nap. And when I woke up, he was gone. He had recently lost his driver's license. And he had decided on his own that he wanted a bus pass because he didn't like the idea of being dependent on me to drive him places. He was annoyed that he could no longer drive himself places. And he decided he was going to go and walk to the local Shoppers Drug Mart and buy himself a bus pass. And he was capable enough to do that. He had to keep asking people, "Where's the Shoppers Drug Mart?". But then once he got there, and he got the bus pass, he couldn't figure out how to get home again. And that's how he got lost. I was in full panic mode, worrying about where he could be and what could happen to him."

Sam shared that she contacted the police. However, no Silver Alert was activated for Eric, as it was not available in that part of Canada. She stated that Eric was embarrassed to be brought home in a police car, although some neighbours were aware of his dementia while others were not. She described the police as calm and gentle, noting they had some training in handling situations involving people living with dementia:

> "I finally had to call the police because it was getting dark. I was driving around; I wasn't able to find him. The police called me back and they said: "We found him and we're bringing him back." The police were great. They really handled it well. They clearly had some training about dealing with people with dementia. And they were really calm and gentle with him. I was very impressed with how well they handled it.

The first thing they did was contact the bus service, and the bus drivers all have radios, and they said, “We're looking for a person who's in this part of town, he might be on your bus.” And sure enough, my husband was on the bus. So, the driver stopped the bus. And he went over and asked him, “Are you [Eric]?” And my husband said yes. And he said, okay, we're just going to wait for a few minutes. And then the police came and met the bus and brought him home. But he was really annoyed with me and really embarrassed that he had had to be brought home and wasn't capable of getting home alone. I think in terms of the neighbours, like he was embarrassed that he was brought home in a police car. Some of our immediate neighbours knew that he had Alzheimer's, but not all of them.”

Sam shared that she continued to experience the emotional impact of her husband going missing and getting worried about Eric who was upset with her about losing his driver’s license:

“I began to worry because he was already upset as many men do get when they lose their driver's license due to dementia. You know, sometimes they tend to get paranoid, like, are you responsible for me losing my driver's license? And he could be aggressive at times. So, I was worried he was going to be angry. And he was angry. He was really upset that I had called the police. And you can't argue with someone with dementia, right? So, I went from being extremely worried about him to being worried about if he was going to be difficult, because my husband was a very tall man. And when he was upset, he could be scary, because he just wasn't himself. It probably took a good couple of weeks before fortunately, people with Alzheimer's, they forget. What he said he had forgotten, which was fine. But for those two weeks, he was just really, really upset with me, he didn't trust me.”

Sam raised concerns about the lack of support following Eric's dementia diagnosis, particularly in preparing for the possibility of him going missing. She stated, "Nobody had said to me, you should be prepared that he might go missing one day," and most of the helpful information she received came from an Alzheimer Society support group rather than from healthcare or community services. She felt abandoned after Eric's diagnosis, stating, "It was like, sorry, you've got Alzheimer's, goodbye, and good luck," with no follow-up or guidance on what to expect or how to prepare. After Eric went missing, Sam got him a soft silicone ID bracelet, typically used by cyclists. Once Eric started wearing it, she said he never tried to remove it, giving her peace of mind. She reflected that she never expected Eric to go out alone without telling her—until it happened, it seemed unimaginable.

Story 5: *Maricel's father, Alex, went missing during an unsupervised walk and has never been found*

Maricel is from Canada and shared that her father Alex, who had dementia and needed 24-hour supervision, went missing about one and a half years ago and was never found. Alex lived with his wife, a part-time teacher, and son, who worked from home. Despite cognitive decline, Alex remained active and took daily hour-long walks. On the day he went missing, he received his first home care services. After the home care staff left, Alex's wife went to work while the son was at home working, leaving him unsupervised. Maricel recounted the incident:

> "On the day [Alex] went missing, someone from homecare came over from 11 AM until 3 PM. The homecare [staff] sat with him, talked to him, and they left. My mom left shortly after to go [teach]. My dad tried calling my uncle just before 4 PM, saying he needed to get to school or something like that. And my uncle not really knowing that this is my dad saying "I'm gonna go wander". This would have been important to be part of a

> [care] plan to say like whenever my dad talks about "I need to go to school, I need to go do something", he's going to take off. So, my uncle just said, okay, call your wife. Unfortunately, my dad didn't repeat that to my mom because she would know that meant he was going to wander. [Alex] just called [my mom] and she said, "I'm going to teach a class right now, I'm going to be back at 5:30 PM." [My mom] would always write [the planning of the day and work] on [Alex's] board, so [Alex] could look at it because there's no way he could retain it. Then [my mom] comes home, and he's gone at 5:30 PM. [My mom] would have chosen to have the homecare [services] come when she was going to be out of the home to teach the class, but there's no choice in that. And there was no safety plan in place."

Maricel stated that her mom and the police actively searched for Alex that evening and over the course of many weeks, but he was never found. She also mentioned that even though a Silver Alert was issued through public or social media channels, it was not sent to people's mobile phones, therefore, many individuals did not see the alert:

> "[My mom and police] go out and try to look for him. By this time, my brother's calling [Alex], he couldn't reach him. And by the time [my brother] reaches [Alex] after 6 [PM] at this point, my dad isn't able to really say where he is, but my dad could read, and he said he was by… [name of street]. And my brother, unfortunately, didn't really clue into where that was specifically. This is also where maybe some more education for the family would have helped. My brother had a call from [Alex] and said he'd be back, but my dad has short-term memory. [When my brother] comes back to [the phone], my dad stops responding. But it sounds like the phone is in [my dad's] pocket or something; he probably just put it in his pocket. My brother hears [Alex] walking. Then my brother tries

to call [Alex] again around 6:30 PM, and he doesn't answer the phone. Sometime around 8:30 PM, [Alex] attempted to call my uncle who lives in [name of city] and unfortunately, my uncle missed the call. And that is the last thing."

"I think drones, helicopters came in and there was a canine unit involved. A Silver Alert was issued for [Alex] in the media. He hasn't been found, and he is presumed to be deceased. I think a Silver Alert that went if it had been able to go to mobile phones, I think that [Alex] might still be alive. I think that Silver Alerts can be lifesaving as they are, and that there can be improvements to that by having them actually go to mobile devices."

Maricel shared that on the second day of Alex's disappearance, a health care aide mentioned possibly seeing him at a medical lab where he routinely had blood work done, but she was unaware Alex was missing. Maricel emphasized that a mobile notification could have alerted the public and potentially helped locate Alex, highlighting the need to educate care partners on dementia-related missing incidents and strategies to mitigate associated risks.

Story 6: Kate's grandfather, Tom, went missing from a long-term care home

Kate, a policymaker and an experienced search and rescue volunteer from the US, recounted her experience when her grandfather, Tom, went missing from a long-term care home several years ago:

"When my grandfather went missing from his care [home], he had pretty severe Alzheimer's. At the time, I remember thinking, oh, well, he couldn't have gone far. He's

on foot. But the fact of the matter is, he was in a care [home] in the middle of a residential neighbourhood."

Kate stated that despite the availability of an alert system such as Silver Alert in the state, it was not activated for her grandfather. Also, the police were not involved because Tom was found quickly by the staff or family:

> "He didn't go far. We found him safe, but he could have walked to any one of the houses, and it's time consuming, and it's a labor intensive process for law enforcement to do a neighbourhood campus and to knock on all the doors and so the missing person might be in, you know, 102 Main Street, but you're only searching 10 Main Street, and you've got all of those houses in between. And in the interim, he decides to go back to 9 Main Street, but you've already gone there. So, you hope then that at that point, they will call you and say, "Hey, he's here now", but that's what's difficult."

Kate also shared that Tom would leave the long-term care home unsupervised daily, prompting the staff to eventually place a monitor on him that would alert them immediately whenever he exited the building. Drawing from her search and rescue volunteer experience, Kate highlighted the significant impact dementia-related missing incidents have on search and rescue operations. She noted they are time-consuming and labour-intensive, requiring law enforcement to canvass neighbourhoods and knock on doors—often while the missing person may still be nearby.

Story 7: Kristel's father, Ben, lives with dementia and went missing

Kristel from Canada, shared two instances of her father, Ben, going missing. The first incident happened when Ben was driving to pick up pizza. Following this, his driver's license was revoked due to safety concerns:

> "I wasn't living at home at the time. But I was informed that my father did go missing at one point. He got lost. In fact, he was actually in the car, he had his driver's license still at that time, his driver's license has since been taken away. But he had gone out. My mother had sent him to pick up some pizza, and to bring it back to the location where she was at, and he didn't return."

Kristel explained that their small town was familiar to her parents, with navigation more like muscle memory, making Ben's missing incident surprising. She believed his confusion may have been due to dementia-related disorientation often experienced by many at dusk. Police did not get involved and no alert system was implemented in their town, and her father eventually found his way home on his own:

> "[My mother] did find him at home eventually. And part of what we deducted was because it was at dusk, and oftentimes with dementia, that dusk time seems to be where the confusion starts to set in. So anyways, thankfully, he did make it home that day, he never made it to the location where mom was at. And so at least he was able to find his way home, thankfully, but it really brought home this aspect that, what if he didn't make it home? Where could he have ended up? We have no idea. And we'd like to think that in a small town, somebody else would recognize him and help him. But you don't always have the luxury of being in a small town or people knowing who you are to help you get back to where you need to be so. So that was kind of a lost but return situation."

Kristel also shared Ben's second missing incident stating that he went missing during a walk and was later found by her mother, who drove around searching for him:

> "I was told more recently where he had gone for a walk, and he never came back. So, mom was left driving around and trying to look for him. And thankfully, he doesn't move too fast. So, he didn't get too far."

Concerned, Kristel's family is now considering a strategy such as MedicAlert®, noting that unlike with children or teens, it is hard to predict where someone with dementia might go:

> "We are looking at something that was more like, I had suggested a MedicAlert® bracelet. So if the MedicAlert® bracelet said he had dementia and I put my mom's phone contact on it so that if somebody found him, they would at least understand that he does have dementia. And this is a phone number he can contact to reach my mother. She was looking into some other kind of medical alert type program. But I didn't quite understand how it worked. And it sounded like she was going to have to subscribe and pay on a monthly basis. But I told her, before she signed up to make sure that she knows that law enforcement in your area is buying into that program too before you start contributing to this organization that says they're going to keep your family member safe."

Kristel added that while her mother is using her phone more to track Ben's movements, she finds tracking technology overwhelming and noted that such devices can be costly, often requiring monthly subscription fees.

The following is the final story in this section on lived experiences with missing incidents.

Story 8: Peter is involved in a search for a person with suspected dementia

Peter, a first responder from Canada, with search and rescue experience shared the case of a person suspected—but not formally diagnosed—with dementia who went missing and has never been found. Peter was involved in the search and noted that a language barrier, as English was not the individual's first language, may have complicated efforts to locate the individual:

> "There's one that stands out, an elderly gentleman of Iranian descent. So, English was a second language, a bit challenging. He went for a walk, every single night, seven o'clock ish. And one night, it was just pouring rain and off, he went, dressed for it, and never returned."

Peter noted that although there was no Silver Alert system in the city where the person went missing, the media helped publicize the case. Extensive resources, including a cadaver dog, were used in the search, but despite these efforts, the person was never found:

> "And so, we spent the next week or so searching. We did grid searches. We got the media involved. This one is a tough one because there was no official Silver Alert, but we got enough media involved and it was a big news story. And his picture was in the news for several days. We talked to the family members individually…the police did their investigation to make sure there's no strife within the family. Is it depression or not? He was never formally diagnosed with dementia. But when you talk to the family, you kind of start asking questions and you go, okay, forgetful, had wandered away a couple of times, and they found him confused. And you kind of start to think he's not depressed, might be dementia and because he's from Iran, that was really challenging, because usually you ask questions about where were they born? Where did they live? Because

they might be trying to get back there? Well, I don't think he's flying back to Iran. And we even brought out a cadaver dog, searched the areas. Never ever found. That's in the middle of a city."

Peter's story shows that searches for missing persons who are never found are devastating and leave a deep emotional impact on both care partners and first responders.

In summary, under the second key theme, participants shared stories of missing incidents involving individuals living with dementia, some of whom found their way home using GPS devices or were located by care partners, the police, or Good Samaritans. Others were never found or presumed dead despite the use of alert systems, leaving care partners without closure. These stories emphasized the emotional toll on individuals, care partners, and first responders, highlighting the importance of raising awareness about dementia-related missing incidents and the need for effective strategies to mitigate risks.

The third and last key theme describes factors that help or delay locating missing persons with dementia as identified by participants.

5.4.3. Factors that help or delay locating missing persons

During the interviews, participants shared perspectives on what supports or delays the efforts to locate missing persons with dementia, emphasizing the importance of promptly notifying police and providing key information about missing persons such as name, age, recent photo, dementia diagnosis, clothing, and transit use. Delaying police reporting can slow search efforts and alert system activation. An experienced search and rescue volunteer shared the

common misconception that one must wait 24 hours before reporting someone missing, which can further delay response. He stated:

> "One of the biggest challenges is people not calling the police early on, for example, we recently had a case where people were falsely believing that you have to wait 24 hours before you could call the police. So that delay in getting help started is problematic. Because there's no cost to the RCMP [Royal Canadian Mounted Police], or the public to request search and rescue, the faster we can get activated, the faster, the smaller the search area, and the faster we can find those people." (P19)

Participants also emphasized the importance of thorough initial planning and investigation, including risk assessments by first responders to determine eligibility for alert system activation. While procedures may vary by jurisdiction, consistent, well-coordinated approaches, efficient investigation, and trained search and rescue personnel were seen as key to effective searches. A police officer, P5, expressed that a "risk rating is fluid" and that most dementia-related missing cases in Scotland are resolved quickly—often within an hour—though a few may enter long-term review if unresolved.

As noted by participants, the perception of risk of harm in missing person situations varies based on external factors—such as weather or mode of travel—which may influence investigation. However, the risk remains significant, especially for individuals living with dementia who may be unable to care for themselves. A care partner and experienced search and rescue volunteer shared this further:

> "When it's in winter and we know that the person left on foot, then search and rescue in the immediate area, that's going to be of primary importance in that case, versus the

person going missing in, say, June in Wisconsin, where it's temperate, there's not any environmental risk factors generally, and they're in a vehicle, then that risk, and that maybe I use assessment, loosely, in determining which investigative strategy to use first, will be a little bit different." (P39)

Participants emphasized the value of notifying the public and seeking their assistance by sharing detailed information, such as physical descriptions, including recent photos or video images through alert systems or media. They also noted that informing public and private transportation services can aid in searches. A participant living with dementia and advocating for Silver Alert in Canada highlighted its potential to locate missing persons with dementia, similar to Amber Alerts for locating missing abducted children:

"If I was driving on a highway and saw the highway sign, I would be able to get on my phone and say, "I just saw that truck and license plate, and I could phone the police or text them." (P18)

Similarly, first responders, noted that most missing persons with dementia are found by the public, and are often aided by alert systems or media notifications. A police officer, P27, expressed this further: "They are the ones who are driving, on the radio, and it's getting a description, they're usually pointing out a person that can match," emphasizing the community's role in locating missing persons with dementia.

Public involvement is crucial for reporting sightings of the missing person, though the report must be based on accurate information to avoid overwhelming police with unrelated tips. Participants stressed that information overload can hinder search efforts, as every report must be investigated. An experienced search and rescue volunteer shared this concern further:

> “Every time you get a sighting, it [must] be investigated, and it has to be followed up on. And if it has nothing to do with the [person], that's going to chew up some resources”. (P28)

Participants highlighted the importance of receiving reliable and detailed tips from the public, noting that effective initial planning is crucial in deciding whether to activate a Silver Alert for missing individuals living with dementia.

Participants, particularly first responders, emphasized the importance of using trained search and rescue volunteers and ensuring police officers receive proper training, including effective communication to handle dementia-related missing incidents. They also stated the need for public education on the risks of going missing, how to recognize missing persons with dementia, and how to communicate with them effectively. A search and rescue volunteer noted the broader impact of alert systems in raising awareness of missing incidents and the need for ongoing community support for individuals at risk of going missing and their care partners, stating:

> “Silver Alert raises community awareness…and makes [the community] more sensitive to people who are at risk and who do go missing, and that encourages the general public to get more engaged in providing support, either before, during or after such events.” (P40)

Participants also shared that some police services have implemented internal training on missing persons with dementia. A policymaker and former police officer said,

> "Internally…we trained recruits and also provided training to search and rescue members [and] incident commanders." (P20)

Other participants pointed out ongoing gaps in police training. A police officer shared this concern further:

> "There's not a lot of specific training out there for police specific to missing persons [with dementia]. And I've been advocating to make that change. Because I think it's a very specific skill set that's needed." P21

Under this key theme, participants noted that timely reporting, detailed information, planning, and coordination among first responders aid in locating missing persons with dementia, while delaying report and excessive or unreliable tips can hinder efforts. There is a need for improved first responder training on dementia-related incidents and alert system use.

In summary, findings were categorized in three themes: 1) Implementing alert systems and policies, 2) experiences of going missing, and 3) factors that help or delay locating missing persons. Participants had both positive and negative experiences with implementing alert systems and related policies for locating missing persons with dementia, and highlighted what worked well, including early involvement of the right individuals, including people with lived experience, community buy-in, legislative backing, multi-agency collaboration, and funding. Challenges for implementing alert systems included sustainable funding, lack of political or legislative support, and a lack of evaluation process. Stories of missing incidents highlighted the emotional impact on both individuals and care partners. While some missing persons returned home or were safely located by police, family members, or Good Samaritans, others remained missing, underscoring the urgent need for effective strategies, including alert systems to support

prompt search efforts. Promptly reporting a missing person to police and providing detailed information were seen as essential for timely searches and alert system activation. Effective searches also require planning, risk assessments, and coordination. Participants emphasized that while public involvement is necessary, vague and excessive tips can overwhelm first responders. Training for first responders and public education was described as necessary to improve support for individuals at risk of going missing and their care partners.

5.5. Discussion

This study explored user experiences with alert systems and related policies for missing persons with dementia, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts from Canada, Scotland, and the United States. Findings revealed both positive and negative experiences with alert system implementation, the emotional impact of going missing, and factors that support or delay efforts to locate missing persons with dementia.

Participants stated what was effective and what posed challenges in the implementation of alert systems and related policies for missing persons with dementia. Regardless of the specific alert system and policy, implementation required collaboration among diverse stakeholders and agencies with shared goals—including those with lived experience—with strong community buy-in emphasized for community-based alert systems such as BC Silver Alert and Purple Alert. Consistent with existing literature, effective alert system implementation relied on partnerships between police and community-focused organizations, such as health, social care, and academic institutions, reinforcing the importance of

collaborative efforts to protect individuals at risk of going missing (Adekoya et al., 2021; Neubauer, Daum, et al., 2021).

Funding from governmental or non-governmental organizations was seen as essential for implementation. However, sustainable funding and political support remained ongoing challenges. Although police-led alert systems have been recommended in the literature, this model may not suit all contexts (Neubauer, Daum, et al., 2021). For instance, BC Silver Alert in Canada is citizen-led, although the system promotes partnership with police (BC Silver Alert, n.d.). In the Purple Alert system, before its discontinuation, families could initiate alerts through a mobile app (Adekoya et al., 2021; Alzheimer Scotland, n.d.). It is important that considerations for implementing similar alert systems assess the capacities of local police and communities to ensure appropriate system design and fit (Neubauer, Daum, et al., 2021).

Involvement of first responders and communities in implementation can also strengthen stakeholder relationships and support public education on dementia-related missing incidents and the use of alert systems to mitigate associated risks (Adekoya, Daum, Miguel-Cruz, et al., 2025; Neubauer, Daum, et al., 2021). While many participants described the implementation of alert systems and related policies as successful, evidence of their effectiveness remains limited, with most accounts being anecdotal. This underscores the need for more research focused on impact evaluation (Adekoya et al., 2021; Gier et al., 2017; Yamashita et al., 2013).

Participants shared personal and emotional experiences related to going missing, caring for missing persons with dementia, or being involved in the search, highlighting the stress such incidents place on individuals, care partners, and first responders. Similar to previous studies (Miguel-Cruz et al., 2024; Taylor et al., 2019), missing incidents described in this study

occurred unexpectedly during routine or familiar activities, such as walking or driving, especially when supervision was limited. These events were described as traumatic, evoking feelings of helplessness and deep worry. Consistent with existing research, many individuals living with dementia and their care partners were unaware of the risk of going missing until an incident occurred (Hu et al., 2024; Li et al., 2024) due to limited information and support at the time of diagnosis. These incidents led to a heightened awareness of the risk, motivating individuals and care partners in this study to adopt preventive strategies such as locating technologies or identification programs such as MedicAlert®. This reactive approach suggests that prevention is often delayed until after an incident, underscoring the need for earlier education, resources, and support for newly diagnosed individuals at risk of going missing and their care partners.

As highlighted in the literature, the fear of repeat missing incidents may lead care partners to limit the independence and outdoor activities of individuals living with dementia, potentially contributing to earlier nursing home admission, increased healthcare use, and greater caregiver burden (Greene et al., 2019; Li et al., 2024; Murata et al., 2021)—including exhaustion, guilt, and depression (Greene et al., 2019). However, the literature emphasizes the importance of outdoor activities such as walking and exercise, which support autonomy, agency, and overall well-being for people living with dementia (Adekoya & Guse, 2019; Shalev Greene et al., 2019).

Participants in this study also raised concerns about driving cessation due to safety risks. While revoking a driver's license may be necessary, it can have significant emotional impacts, resulting in feelings of sadness, grief, frustration, and resentment, especially for

individuals living with dementia. Ultimately, this loss of driving privileges can lead to a reduced sense of autonomy for the person living with dementia (Holden & Pusey, 2021).

Alert systems have the potential of locating missing persons with dementia quickly by notifying the public and offering support to people living with dementia and their care partners, while also supporting a sense of independence (Adekoya, Daum, Neubauer, et al., 2025; Neubauer, Daum, et al., 2021; Wasser & Fox, 2013). However, participants in this study shared stories where alert systems were either unavailable, not activated, or ineffective in locating a missing person. They emphasized the need to improve alert system effectiveness—for example, by enabling notifications on mobile phones—and to ensure such systems are consistently in place. Research has highlighted the importance of localized alerts, as most missing persons with dementia are typically found close to their last known location (Adekoya, Daum, Neubauer, et al., 2025; Miguel-Cruz et al., 2024; Neubauer, Daum, et al., 2021). Our findings point to the need for greater public education and awareness about alert systems and their potential to support timely searches and enhance safety.

Participants shared insights into factors that support or delay the location of missing persons with dementia. Promptly reporting someone missing to the police is critical and can enable timely activation of alert systems, yet misconceptions—such as the belief that one must wait 24 hours—can delay searches and reduce effectiveness. Although there is no required waiting period, studies have found that care partners may hesitate to report missing relatives to police (Greene et al., 2019; Larsson et al., 2025) due to embarrassment, guilt, fear of judgment, or a desire to protect the person with dementia (Greene et al., 2019). This points to the importance of public education and collaboration between police and community organizations, such as Alzheimer Societies, to address misconceptions, raise awareness of

missing incident risks, and connect families with resources before, during, and after an incident (Adekoya et al., 2021; Neubauer, Daum, et al., 2021). Participants stated that early conversations about the risk of going missing and the benefits of alert systems can improve preparedness. While public sharing of personal information can aid in searches (Adekoya, Daum, Neubauer, et al., 2025; Gergerich & Davis, 2017), it is only effective when individuals can accurately recognize the missing person (Gier et al., 2017), underscoring the risk of misinformation and false leads. To improve outcomes, participants also stressed the need for dementia-specific training for first responders, including conducting risk assessments and effectively utilizing alert systems during investigations.

5.5.1. Recommendations for Policy and Practice

These findings provide key recommendations for policy and practice. The implementation of alert systems and related policies calls for a partnership-based approach that involves early engagement of key stakeholders—such as people with lived experience, police, community organizations, and political leaders—to align shared goals and secure sustainable funding. A structured evaluation process is also important for assessing the effectiveness and overall impact of alert systems. Alert systems can allow users to receive mobile notifications tailored to geographic areas, paired with public education to increase awareness of their value in supporting timely searches and enhancing safety.

Given the emotional impact of missing incidents on individuals and care partners and the reality that such events occur both in the community and in nursing homes, proactive support is needed before, during, and after incidents. Training for primary care providers, service providers, and health care professionals needs to emphasize early education about the risk of going missing,

proactive safety strategies, including alert systems and connection to community resources, especially at the time of diagnosis.

Clear policies and standardized training for first responders, including police and search and rescue teams, are essential to promote appropriate, compassionate responses to missing persons with dementia. These efforts can include guidance on how to collaborate with care partners and interact with people living with dementia. Building partnerships between first responders and community organizations can foster public trust, raise awareness of the risks, and promote timely reporting—ultimately supporting more effective and coordinated search efforts.

5.5.2. Strengths and Limitations

The strengths of this study lie in its use of multiple case studies and integration of stakeholders' stories to capture the social and cultural contexts surrounding missing incidents and individual experiences of going missing. By preserving narrative detail and meaning, the study offers rich insights into how these events are experienced and interpreted. Inclusion of diverse stakeholders across three countries further enhances the applicability of findings beyond a single context. However, the use of purposive and snowball sampling techniques in this study may have led to the recruitment of participants who were particularly eager to share their experiences, as well as those more inclined to support alert systems. Consequently, this could have resulted in a sample comprised of individuals who are more willing and invested in the study. Additionally, since the majority of participants were White, we may not have adequately captured the experiences and perspectives of individuals from racialized groups and communities. This underrepresentation indicates a need for research to intentionally engage a

broader range of voices to reflect the diverse cultural and social needs of all communities affected by dementia-related missing incidents.

5.6. Conclusion

This study explored user experiences with implementing alert systems and related policies for missing persons with dementia across Canada, Scotland, and the US, drawing on stories and insights from individuals who went missing, care partners, and those involved in search efforts. Participants emphasized the need for early stakeholder involvement, along with community buy-in, legislative support, funding, and inter-agency collaboration and discussed challenges such as lack of evaluation, and sustainable funding. Emotional impacts of missing incidents were profound, highlighting the urgent need for effective strategies, including alert systems to support prompt search efforts. Effective alert systems were seen to require timely reporting, tailored mobile notifications, coordinated planning, and public education to reduce misinformation. The findings highlight the importance of understanding user experiences with missing incidents and implementing alert systems and related policies, as a key step in addressing dementia-related missing incidents and enhancing the safety of individuals at risk of going missing.

Building on Study 1, which described user experiences with missing incidents and the implementation of alert systems and related policies, Study 2 focuses on enhancing our understanding of the implementation of alert systems, with a particular focus on identifying potential barriers that may hinder their effective use. The next chapter presents Study 2, which explored the conditions surrounding the implementation and use of alert systems for missing

persons with dementia. The KTA framework (Graham et al., 2006) was used to identify potential barriers and to bridge research and practice for effective knowledge translation.

Chapter 6: Study 2

Locating missing persons with dementia: Using Knowledge-to-Action Framework for implementation of alert systems

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6.1. Overview

Alert systems can engage the community to help locate missing persons with dementia. Evidence on impact of implemented alert systems is minimal. Guided by three adapted Knowledge-to-Action Framework phases: identifying the problem, assessing barriers, and evaluating outcomes, this study aimed to examine understandings about alert systems and their implementation in Canada, Scotland, and the United States. A document review and interviews conducted with 40 stakeholders (those with lived experience, first responders, service providers, and policymakers), underwent thematic analysis. Findings revealed variability in alert systems implementation and barriers at individual (limited understanding of alert systems, privacy concerns, alert fatigue) and organizational levels (sustainability, accessibility, privacy legislation). Participants recommended the following for successful implementation of alert systems: clear policy, collaboration, ongoing assessment, and a localized, opt-in system with accessibility, public education, and sustainable funding. This information indicates under what conditions alert systems for missing persons with dementia could be implemented.
Keywords: Dementia, missing incidents, alert system, Silver Alert, implementation barriers.

6.2. Background

As global population ages, the prevalence of dementia is anticipated to increase. Currently, nearly 10 million new diagnoses of dementia are identified each year (World Health Organization, 2025). Due to cognitive decline, people living with dementia face the risk of becoming lost or missing. Incidents of going missing can happen at any stage of dementia, regardless of the individual's age (Rowe et al., 2012). However, advanced age is associated with a higher frequency of dementia-related missing incidents (Miguel-Cruz et al., 2024). Missing incidents are often labeled critical wandering, to distinguish from other types of wandering. Critical wandering is defined as behaviour marked by spatial disorientation and difficulties in wayfinding, causing individuals to lose track of time and place (Neubauer et al., 2018).

Research suggests that between 40-60% of individuals living with dementia may go missing at least once, with about 5% experiencing repeated episode (Miguel-Cruz et al., 2024; Petonito et al., 2013). Most dementia-related missing incidents happen in community settings and occur during daily activities such as walking or driving, even when accompanied by a care partner (Miguel-Cruz et al., 2024; Rowe et al., 2011). People who go missing may be exposed to extreme temperatures, dehydration, resulting in injury or death (Kikuchi et al., 2019; Rowe et al., 2011). Missing person incidents are linked to higher rates of long-term care placements due to safety concerns about living independently at home, increased use of healthcare services, and added stress for care partners (Rowe et al., 2015).

Research emphasizes the importance of implementing strategies that enhance the safety of people living with dementia at risk of going missing, while preserving their freedom to walk outdoors to promote autonomy, agency, and overall well-being (Adekoya & Guse, 2019).

Various programs aim to mitigate risks and facilitate safe return. The Finding Your Way™ program by the Alzheimer Society of Canada raises public awareness about the risks of going missing, offers community support and resources, and provides training about dementia for first responders (Hillier et al., 2016). The Safe Return program in the United States (US) and Australia registers individuals living with dementia, and provides identification (ID) bracelets or necklaces with an emergency response number (MacAndrew et al., 2018; Petonito et al., 2013). Similarly, Canada's MedicAlert® links medical IDs to personal health records, accessible via a 24/7 hotline or digital system (Miguel-Cruz et al., 2024).

Locating technologies such as Radiofrequency identification (RFID) and Global Positioning System (GPS) installed in watches, bracelets, belts, mobile phones and shoes are used to track missing persons (Neubauer et al., 2018). Project Lifesaver®, used in Canada and the US, provides individualized radio-frequency transmitters tracked by search and rescue personnel (Neubauer, Miguel-Cruz, et al., 2021; Petonito et al., 2013). However, the use of these technologies raise some ethical concerns about privacy, autonomy, and dignity of people living with dementia while also being costly for families with limited evidence supporting their effectiveness (Neubauer et al., 2018). Additionally first responders in many countries, including Canada, are now using social media to alert the public about missing persons with dementia (Neubauer, Miguel-Cruz, et al., 2021).

To address the urgent need for locating missing persons with dementia, alert systems have been proposed to engage the community in search efforts (Gergerich & Davis, 2017; Rowe et al., 2011). Alert systems refer to systems that utilize technology such as media outlets, emergency networks, social media (e.g., Facebook), and apps to disseminate information (e.g., name, age, photo, physical descriptions, medical conditions) about missing persons at risk of

harm (Adekoya et al., 2021; Gergerich & Davis, 2017). Alert systems exist for various populations, including the Green Alert for missing veterans (Geppert, 2022), Gold Alert for persons with dementia or cognitive impairments, and Feather Alert for Indigenous individuals who go missing under suspicious circumstances (Fox et al., 2024). In Canada, Amber Alerts use the Alert Ready system for abducted children and other emergencies. However, this system is not used for missing persons with dementia. Instead, dementia-related missing alerts are issued via social media in Canada, as their frequency and non-criminal nature could create alert fatigue (Adekoya, Daum, Neubauer, et al., 2025).

Community-based and province or state-wide alert systems exist in various countries to help locate missing persons with cognitive impairments. In Canada, the Community ASAP mobile app was developed to connect community volunteers, businesses, and police services to improve search efforts (Neubauer, Daum, et al., 2021). However, this is currently not operational due to the lack of a business model and sustainability concerns. Similarly, Sweden and some parts of the UK use Safeland, a mobile or web app to share emergency alerts such as missing persons, to monitor neighbourhoods, and report crimes, with the aim of enhancing community vigilance (Liu et al., 2022). Scotland's Purple Alert app, which allowed families to notify the community about missing relatives with dementia (Adekoya et al., 2021), operated for seven years before its recent discontinuation (Alzheimer Scotland, n.d.) probably due to sustainability challenges. In the US, state-wide alert systems commonly referred to as Siver Alerts used by police services, disseminate information about missing persons with dementia via highway signs and media, reaching a wide audience (Gergerich & Davis, 2017).

The rise in dementia-related missing persons has prompted calls for Silver Alerts in Canada, similar to the US model. A petition for a National Silver Alert was presented to the

Canadian House of Commons in February 2019 (Adekoya et al., 2021), leading to government acknowledgment and increased funding for the National Dementia Strategy, while delegating alert systems responsibilities to provinces. While Alberta, Manitoba, and Ontario have included "Silver Alert" in their amended Missing Persons Acts, currently there are no Silver Alerts implemented in these provinces. British Columbia (BC) has a community-led Silver Alert (BC Silver Alert, n.d.) and introduced Bill M202, the Silver Alert Act, but it did not pass beyond the first reading (Legislative Assembly of British Columbia, 2014). Quebec's Bill 14 allows police to collect information on missing persons, including vulnerable individuals, and share details with the public if needed to assist in locating them (National Assembly of Quebec, 2023). Quebec province also recently launched a Silver Alert pilot project for missing older adults (Adekoya, Daum, Miguel-Cruz, et al., 2025).

Despite support for alert systems for dementia-related missing incidents, there is a gap in our understanding of their implementation and adoption in Canada. While alert systems are perceived to reduce risks, promote independence, and ease care partners' concerns, their implementation, adoption and impact (or usefulness) remain unexplored. Although ethical concerns about the public disclosure of personal information, such as an individual's cognitive impairment and potential privacy violations have been raised (Adekoya et al., 2021; Petonito et al., 2013; Wasser & Fox, 2013), public understanding of why alert systems are implemented in some situations but not others remains limited. This study examined the development and implementation of alert systems and related policies, including legislation and procedures in Canada, Scotland, and the US. The authors aimed to understand the conditions surrounding the implementation and use of alert systems, including potential barriers, by applying the

Knowledge-to-Action Framework to bridge research and practice for effective knowledge translation.

6.2.1. Theoretical Framework

The Knowledge-to-Action (KTA) Framework facilitates the translation of knowledge into practice and policy through two components: Knowledge Creation and the Action Cycle (Figure 1) (Graham et al., 2006). Knowledge Creation refines raw data into actionable tools such as systematic reviews and guidelines. The Action Cycle guides implementation through phases such as identifying problem, adapting knowledge to local context, assessing barriers to knowledge use, selecting, tailoring, and implementing interventions, monitoring knowledge, evaluating outcomes, and sustaining knowledge. The KTA process is iterative and stakeholder-driven, involving researchers, practitioners, policymakers, and those with lived experience. This study followed three adapted KTA phases: identifying the problem, assessing barriers to alert system implementation and use, and evaluating outcomes (Graham et al., 2006) to bridge research and practice for effective knowledge translation.

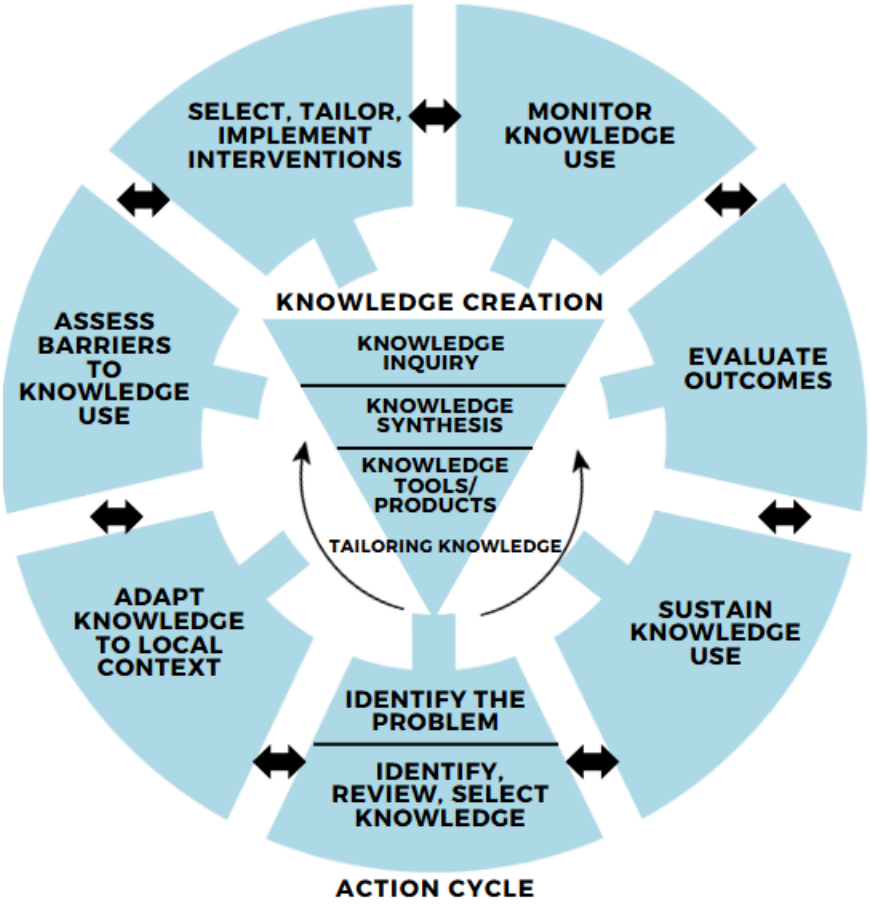

Figure 1. Knowledge-to-Action Framework (Graham et al., 2006)

6.3. Methods

Refer to Chapter 4, page 36 for methods.

6.4. Results

6.4.1. Findings from Document Review and Stakeholder Engagement

6.4.1.1. Problem Identification

The Action Cycle of the KTA framework begins with identification of the problem or knowledge-to-action gap (Graham et al., 2006). To identify the problem and understand the conditions surrounding the implementation and use of alert systems, we reviewed policy documents related to missing persons and alert system, including legislation and procedures and engaged relevant stakeholders (see Table 3).

BC Silver Alert, a community-based alert system in Canada was developed by Sam Noh and Michael Coyle in 2014 after the disappearance of Shin Noh, a 64-year-old pastor with dementia (BC Silver Alert, n.d.). The system notifies subscribers about missing persons with dementia or autism within a 10-kilometer radius of the home or place of living using a preferred method, such as social media or a Short Message Service (BC Silver Alert, n.d.).

Purple Alert, a mobile alert app developed by Alzheimer Scotland in 2015 (Adekoya et al., 2021), allowed families to notify the community about missing relatives with dementia and connect directly with those who recognized them. Purple Alert operated for seven years and was discontinued in 2024 (Alzheimer Scotland, n.d.) probably due to sustainability challenges.

The US Silver Alert, first launched in 2006 and modeled after Amber Alert (Gergerich & Davis, 2017), enables police to notify the public about missing persons with dementia or cognitive impairment using media, wireless emergency alerts, or changeable highway signs.

However, the system does not push notifications to mobile phone users in a geographic area, like Amber Alert does.

Variability in Implementation of Alert Systems

Authors reviewed policies, legislation, and procedures related to alert systems, their standardization, and practices and search approaches to support individuals at risk of going missing (see Table 3) (California Legislative Information, 2023; Legislative Assembly of British Columbia, 2014; Legislative Assembly of Ontario, 2023; New Jersey Legislature, 2016; Police Scotland, 2025; Scottish Government, 2017; The National Silver Alert Act, 2008). Documents indicate that alert systems and related policies are implemented through coordinated lobbying by individuals (e.g., family members of missing persons), groups or advocacy organizations (e.g., local Alzheimer's Societies) in collaboration with legislators or policymakers, police, and health and social services. However, implementation varies across regions.

There was no indication of specific legislation on an alert system or Purple Alert in Scotland before its implementation. P2, a service provider emphasized the need to develop Purple Alert to address dementia-related missing incidents despite the lack of specific legislation on alert systems. "We don't have the policy but again we would have done it…because nothing is really stopping [us]. I mean, unless there is a policy or legislation that says you cannot possibly have a community alert system." In BC, the Silver Alert Act was introduced in 2014 in response to dementia-related missing individuals. However, the bill did not progress beyond the first reading (Legislative Assembly of British Columbia, 2014).

Similarly, Ontario's attempt to establish a provincial Silver Alert in 2011 was unsuccessful, though the term "Silver Alert" was later included in the amended Missing Persons

Act (Legislative Assembly of Ontario, 2023). However, the term “Silver Alert” has different meanings depending on locations. For example, in Canada, Silver Alert is commonly understood as the use of public or social media by the police to broadcast information about a missing person with dementia. P20, an experienced search and rescue volunteer with policy expertise described this concern further: “We had the corporations that provide Amber Alert, that was pushed back, because of how many times it would interrupt their broadcasts…they are paid to advertise. If the advertising gets cut back, that would create friction within the system.” In contrast, the US introduced the National Silver Alert Act in 2008, providing guidelines while allowing criteria to vary by state, considering factors such as age thresholds (e.g., 55, 60, or 65+), disability status, cognitive impairment, or being classified as "at risk." (Gergerich & Davis, 2017).

Terminology for Silver Alert also differs across the US, including names such as Golden Alert, Senior Alert, and Endangered Missing Persons Alert. P12, a participant and researcher from the US highlighted variability in Silver Alert implementation: “It is up to the local law enforcement agency to adapt search for missing individuals. So, there becomes great variability on how that occurs from community. It varies not only state by state but community by community.”

Table 3. Policies and legislation related to alert systems (Canada, Scotland, and the US)

Title	Year	Description
Bill M202 – Silver Alert Act, 2014	2014	In 2014, a bill was introduced in BC to establish a Silver Alert system, inspired by situations like Shin Noh with Alzheimer’s disease who went missing in 2013. The bill

		aimed to assist in locating missing individuals with cognitive impairments through law enforcement and community collaboration, similar to AMBER Alerts. Despite highlighting the rising number of people going missing with dementia and the need for public awareness, the bill did not advance beyond its first reading.
Bill 74 – Missing Persons Amendment Act	2023	The bill amends Ontario's Missing Persons Act, 2018, to create a Vulnerable Persons Alert system aimed at locating missing individuals at higher risk due to age or disability. Police can request the Ontario Provincial Police (OPP) to issue the alert with sufficient descriptive information and reasonable grounds that it will aid in locating the person. The OPP can issue the alert similarly to AMBER Alerts, and annual reports will track data on Vulnerable Persons Alerts
Herbert Protocol	2017	The Herbert Protocol is an information gathering tool launched in Scotland in 2017 and nationwide in 2021. It is used to collect personal information of individuals living with dementia (e.g., name, age, medical history, places of interest) at risk of going missing to assist police in locating them quickly. Developed with Police Scotland, Health and Social Care Scotland, Alzheimer Scotland, and the Scottish Government, it can be completed by care partners and is

		accessible on the Police Scotland website, sharing information with relevant agencies.
National Missing Persons Framework for Scotland	2017	The framework aims to prevent missing incidents and reduce harm, focusing on children, young people, and adults with dementia. Its goals include prevention, consistent response, family support, and protection for vulnerable individuals. Developed by the Scottish Government with various agencies, including the National Health Service (NHS), and third-sector organizations, it emphasizes a multiagency approach to missing persons prevention, investigation, and aftercare, drawing on insights from individuals with lived experience.
Technology Charter	2017	This charter aims to improve technology access and support independence and safety of people living with dementia and care partners, aligning with the Dementia Strategy 2013. It was developed in collaboration with stakeholders, including people with lived experience, the Scottish Government, and various organizations in health, social care, housing, and technology.
The National Silver Alert Act	2008	The Act in the US establishes a national Silver Alert system to locate missing older adults with dementia or cognitive impairment, modeled after the Amber Alert system. It provides funding, guidelines, and coordination for states,

		including a national resource center, training programs, and grants for tracking technologies. The Act also reauthorizes Kristen's Act, supporting efforts to find missing adults through a national database and nonprofit organizations.
California Assembly Bill 946 (AB 946)	2023	The bill establishes the Endangered Missing Advisory system (another term for Silver Alert) to help locate individuals with developmental disabilities, cognitive impairments, or those unable to care for themselves. Law enforcement can request California Highway Patrol (CHP) activation when local efforts are exhausted, prompting alerts via electronic flyers, social media, and message signs. Media outlets are encouraged to share advisories, increasing public awareness and engagement in locating vulnerable missing persons.
New Jersey Statute § 52:17B-194.4 – Silver Alert System	2016	The statute directs the Attorney General to establish Silver Alert to rapidly disseminate information about missing persons believed to have dementia or other cognitive impairments. The system operates as a voluntary, cooperative effort between state and local law enforcement agencies and media outlets, including print, radio, television, and social media. The Attorney General is responsible for notifying media for participation, while the Division of State Police shares alerts on social media and works with state

	agencies for wider reach. Updated investigative guidelines also ensure alerts are issued while safeguarding sensitive health information.

6.4.1.2. Perceived Barriers to Implementation and Use of Alert Systems

This KTA phase identifies potential barriers that may limit the uptake of knowledge or an intervention into the 'real world' or practice setting (Graham et al., 2006). The barriers to implementation and use of alert systems as identified by participants are classified under individual-level (*limited understanding of alert systems*, *privacy concerns, alert fatigue*) and organizational or system-level barriers (*sustainability*, *accessibility, privacy legislation*). This section will also highlight opportunities or facilitators to support the implementation and use of alert systems.

Individual-Level Barriers

Individual-level barriers to the implementation and use of alert systems are identified as limited understanding of alert systems, privacy concerns, and alert fatigue.

Limited Understanding of Alert Systems

Participants all highlighted the need for an alert system to locate missing persons with dementia, yet there is limited understanding of the system among the public. Participants lack clarity on the criteria and implementation process. Therefore, being knowledgeable about alert systems was perceived as a facilitator to the adoption and use of such systems. Participants noted that understanding and adoption of alert systems vary among police agencies, with some being

quick to use them while others lacked awareness or experience, leading to variability in their activation and perceived value.

One participant living with dementia (P36) acts as a Silver Alert advocate in Canada emphasized the need for education and public awareness about alert systems and how people can support their implementation in Canada: “Many people think there is one in place, and they say when someone has gone missing, why didn't they use the Silver Alert, well, it's not totally functional yet, so we have to make sure that people understand.” Similarly, a search and rescue expert from the US discussed the importance of public engagement with alert systems:

> People that work within it and law enforcement and people on the systems understand it and utilize it as effectively as any other program and that's going to vary, but the public engagement and sort of the laypersons understanding of Silver Alert, that's where I think our system has the biggest need for improvement. (P31)

Some participants expressed concerns about the adoption and effectiveness of community-based alert systems due to limited awareness of dementia and the system, highlighting the need for dementia education. An experienced service provider emphasized the need to raise awareness about dementia and community-based alert systems, such as Purple Alert, which enable family members to notify community about their missing relatives:

> In theory, I think having an app on your phone is a great idea. But for that to be effective, it needs to be marketed so that lots of the public know about the app, and how they can help people living with dementia, and how it can save lives because they absolutely could do. But not enough of the public knew about it or have the app on their phone… unless

> they work in this field, or they've had a relative who's gone missing. So that's about increasing people's understanding and awareness of what dementia is. (P3)

Privacy Concerns

Participants identified privacy concerns as a barrier to implementing and using alert systems, stressing the need to balance privacy and safety. Stated privacy concerns are related to data protection, stigma of dementia, and risks of fraud, scams, or abuse. Individuals living with dementia and care partners may feel embarrassed about disclosing a cognitive impairment diagnosis, though some communities are more accepting of it. However, participants shared that, based on their experiences, a cognitive impairment diagnosis remains culturally unacceptable in many communities. A participant living with dementia and in support of developing and implementing alert systems such as Silver Alert in Canada, expressed concerns about the stigma:

> Dementia is a taboo word. Some communities keep that information close to their chest. They don't want other people to know because it's embarrassing to them. So that's the stigma, but it's also the community at large. P16)

Participants expressed concerns regarding how denial of a dementia diagnosis and distrust of police and technology can hinder the adoption or use of alert systems. Care partners may feel embarrassed about a cognitive impairment diagnosis and hesitate to report missing relatives and/or disclose the diagnosis, which delays search and rescue efforts. Privacy concerns can stem from a culture of self-reliance where care partners and service providers may hesitate to ask for help. This was highlighted by a search and rescue volunteer:

> I think cultural barriers sometimes can be a little bit of a hindrance. Sometimes if people have gone missing again, I think you probably can have people that don't or maybe in

> denial, in some cultures, more so than others, or some beliefs that people just don't want to ask for help. You know, I can do it on my own type situations. (P38)

Others noted how public disclosure of personal information could increase privacy risks and hinder program adoption. A care partner and lawyer, whose mother went missing in Canada, shared these concerns:

> Balancing some of the concerns, which would be privacy and vulnerability, I do worry about that, and that would be exposing their medical background and also possibly exposing them…to vulnerable or bad people in the community when they're very vulnerable. (P37)

Privacy concerns influence people's perception and acceptance of alert systems. A participant living with dementia, P9, shared the experience with Scotland's Purple Alert: "The device makes me even more paranoid than I am. But I'm also a tech geek. So, I understand and know too much about surveillance in general. And how the phone can track you. I'm a very private individual. And yeah, I take it too far." While P9 acknowledged privacy concerns, he remained open to using alert systems due to their potential to quickly locate missing persons and reduce risk, highlighting the need to address these concerns.

Although privacy concerns were seen as a barrier to implementing and using alert systems, some participants noted that addressing these concerns during development and implementation encouraged adoption. A service provider (P2) involved in the implementation of Purple Alert shared the importance of addressing data protection early: "There was a lot of concerns about data protection…at some point, we involved our data protection officers, which were experts in data protection. Because obviously, we were handling sensitive data. So, we

would have their input on that." P2 and other participants emphasized that addressing privacy concerns is crucial in ensuring end users feel confident using alert systems, knowing safeguards are in place for data protection.

Alert Fatigue

A last barrier to the implementation and use of alert under individual-level is alert fatigue. Alert fatigue occurs when frequent missing persons alerts desensitize the public, leading to ignored notifications (Gier et al., 2017). Participants expressed concerns about alert fatigue, commonly reported with Amber Alerts, may hinder the implementation, and adoption or use of alert systems, with some users feeling overwhelmed by constant alerts. Some participants, particularly from Canada, raised concerns about alert fatigue if alerts were sent out nationally. Others noted that police officers, like the public, could also experience fatigue from frequent missing person alerts. For example, an experienced police officer and search and rescue coordinator (P21) from Canada referenced Ontario Provincial Police (OPP) statistics, stating, "there would be over 600 [alerts] a year, so you're gonna get two a day." A policymaker from the US also elaborated on these concerns:

> If there's a particular area or region of a state in the country that has a high number of Silver Alerts, the biggest disadvantage is the community ignoring the alert. Because they get it so many times they just tune it out is sort of like hearing a car alarm that after a while you've just heard it for going off, you just kind of tune it out…which is precisely why the criteria are so important, so that there's standardization in Silver Alerts, and that the public is not desensitized to them. (P39)

Participants further emphasized the importance of addressing alert fatigue to make alert systems more relevant and meet end user needs. A service provider (P1) questioned whether people downloaded Purple Alert app only if personally affected, noting that those without experience with dementia or missing persons might overlook it due to concerns about alert fatigue thinking: “We're living in a world where we're saturated with different apps to download”. A search and rescue volunteer and former police officer (P20) on a Silver Alert advisory group, stated: “We need to be very concerned about alert fatigue. And not only how the public perceives it, but with our partners who are implementing this system for us because it’s a public private partnership.” As noted by P20, implementing alert systems would require collaboration between the public and law enforcement. He suggested that alerts issued through police services or government agencies might be better accepted and adopted, especially if they are activated only when necessary, within a specific geographic area.

Some participants expressed that the risk of alert fatigue in community-based systems like BC Silver Alert, where subscribers can choose to receive alerts on mobile devices, is minimal. Having localized alerts was identified as important in addressing concerns related to alert fatigue. A care partner and health care provider, P14, involved with BC Silver Alert noted that Amber Alerts, particularly in Ontario, often triggers complaints about nighttime disruptions, but this may not apply to Silver Alerts. She emphasized the need for a pilot program to test the system rather than assuming alert fatigue would be an issue: “Let’s try it out and do a trial system… but don’t already put it in people's minds that they're going to have alert fatigue.”

Overall, participants noted that concerns about alert fatigue may stem from assumptions or limited understanding of alert systems. They emphasized the need to raise public awareness while ensuring alerts are targeted to specific geographic areas to minimize fatigue.

Organizational or System-Level Barriers

Under this theme, organizational or system-level barriers to the implementation and use of alert systems include sustainability, accessibility, and privacy legislation.

Sustainability

Funding, resources, staff training and time commitment were all identified as barriers to the implementation of alert systems at the system level. The development and implementation of alert systems relies on government or nonprofit funding, which can be limited. A policymaker discussed the costs of implementing an alert system in the US:

> There's a cost to developing the legislation. The cost for the law enforcement agency that was responsible for managing the program. There's a couple of cost pieces. One is the cost to maintain the platform upon which the alert goes out. Secondly, there's a cost to an individual, personnel, a full-time employee, to manage the program. If a law enforcement agency is tasked with managing a program that becomes legislatively mandated, the cost really is deferred to the law enforcement agency. So, you're going to have to find it in your local budget to do that. It’s really in the implementation piece and then sustainability over time. (P39)

Participants also raised concerns about securing initial funding for implementing alert systems. A care partner noted that time commitment also impacted BC Silver Alert's progress:

> I would just say that funding is a big thing. If we had either the funding to have even one of us to be running this full-time and get it going and getting the policies and regulations, all of that put together, that would be sufficient for one piece of it. And the other piece

would be like we pay for subscriptions, etc., to different platforms. And that's all coming out of what little money that we do have. (P14)

While government or third-party funding helped in the development and implementation of alert systems, sustaining daily operations remains a challenge. A service provider elaborated on the challenges of maintaining Purple Alert:

> The disadvantage of Purple Alert, I would say is that it costs money to run. We are looking for ways to make it more sustainable. But for us as being a third sector organization, sometimes it's difficult to justify financial transactions. It's always a bit tricky for us, but to date, we've managed to absorb the costs, because we would rather have it as a core service than not having it at all. The cost of development and once a year, probably you need to spend in the region of 20,000 pounds, just to update the back, the minimum, the backend and just to make it run nicely. So, it does become a bit of an expense. (P2)

Participants highlighted sustainability as a challenge to implementing and adopting alert systems, as their operation requires long-term commitment and resource allocation—key factors in ensuring their long-term effectiveness.

Accessibility

Accessibility was an important consideration in adopting or using alert systems. Participants stressed the importance of multilingual support and ensuring systems meet user needs. P38, a search and rescue volunteer shared challenges in communicating with individuals whose primary language was not English, which affected interactions and the use of alert

systems: “In some cases, there might be a language barrier. That’d probably be the first thing that we run into, just by people, either non-speaking and non-English speaking folks, or something like that.” P40, another experienced search and rescue volunteer emphasized the importance of making information shared in alert systems simple and clear to enhance their effectiveness and public engagement: “There's probably room for enhancing Silver Alert, a little bit on the technology side. If people were interested in being alerted, what's the one application to install on your phone that would do it, and not this hodgepodge of apps.” A technology developer further addressed accessibility concerns:

> When I look at websites or mobile applications, some of them don't get good adoption technology-wise or download-wise, it's mainly because their user experience is not as easy or clear. Do people know the importance of the information? I think this kind of education is lacking all around, especially with a lot of immigrants. I don't think people know what to do with different languages. (P22)

In addition, participants raised concerns that cost, digital literacy, and privacy concerns could limit access to app-based alert systems, delaying their adoption or use. A service provider further elaborated on these challenges:

> Purple Alert does depend on some critical factors for success, and one being that the carer or the family have a smartphone they can have apps on. And we know that with the demographic of people living with dementia, and not everybody has a smartphone, majority of the population do nowadays. But one thing I'm always mindful of is, what about however small that percentage is, who don't have the right technology? (P1)

While accessibility challenges were raised, some participants, particularly from Scotland, highlighted that Purple Alert was intentionally designed to be simple to enhance adoption and use. A service provider (P1) from Scotland further explained, “Purple Alert is free for our users. This doesn't mean that it doesn't cost anything. But it's actually quite an expensive service to run. It's been designed to be as simple as possible to use. So that it's, again, accessible”. This reinforces the importance of user-friendly alert systems, as noted by participants, to improve accessibility and encourage widespread adoption.

Privacy Legislation

Participants identified privacy legislation as one of the main barriers to implementing and using alert systems. In Canada, the Privacy Act (Government of Canada, 2021b) governs how government institutions handle personal information, while the Personal Information Protection and Electronic Documents Act (PIPEDA) sets rules for organizations in commercial activities regarding personal information collection, use, and sharing (Government of Canada, 2021b). Police must vet missing persons' information provided by care partners or other sources before public release which can delay issuing an alert and affect the adoption or use of alert systems (Adekoya, Daum, Neubauer, et al., 2025; Gergerich & Davis, 2017). A search and rescue officer voiced concerns about these privacy restrictions in Canada:

> Privacy is always an issue in Canada, it's always going to be. We've created PIPEDA and other laws. Every investigation is based on privacy. I'm a huge supporter of the program. But is it a possible invasion of one's individual's rights to privacy versus they'll say governmental interests? I think overall that the challenge may probably be privacy and

> the individual choice of the older adult if they wish to be part of the program or not. (P27)

In the US, the Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule protects medical records and personal health information, applying to health plans, clearinghouses, and certain health care providers (The United States Department of Health and Human Services, 2024). Participants noted that the use and activation of Silver Alert may be delayed due to privacy restrictions. In states like Virginia, an alert requires the missing individual to have cognitive impairment, including a diagnosis of Alzheimer's or dementia, and the need for care partner assistance. However, if the person does not have a formal diagnosis of dementia, search and rescue may or not issue an alert or begin search right away. Further, a researcher, P12, stated that a "Major flaw was delaying search initiation or concerns about health privacy disclosures". A search and rescue manager highlighted a potential HIPPAA violation:

> We're not really allowed to broadcast somebody's health condition to the world. So that's why we say that, hey, they're missing at risk and that's all we're gonna say. We don't want to say missing with dementia because that is basically giving them healthcare information. It could be a HIPAA violation. (P30)

Although privacy legislation differs in Scotland, where community alert systems may not require police vetting, participants emphasized the importance of addressing privacy and data protection in Purple Alert's development and implementation. A policymaker, P6, involved in the implementation shared insights on this issue: "There was a lot around that as well about how do you keep people's information secure enough that you don't put them at risk, because they're vulnerable in the community? Again, police were really good in supporting that as well."

Privacy legislation poses a challenge in implementing and using alert systems. While it is essential for protecting individual privacy and ensuring fair information practices, participants emphasized the need to balance these regulations with the practical implications for alert system adoption and use.

6.4.1.3. Evaluating Outcomes

An essential KTA phase involves evaluating the impact or outcomes of an intervention to track progress and confirm the value of implementation efforts.

Limited Evidence on Effectiveness of Alert Systems

Evaluating the outcomes of alert systems is crucial to determine if they meet the goals of engaging the public to locate missing persons with dementia. However, the implementation of alert systems often lacks comprehensive impact evaluations, thereby limiting evidence of their effectiveness. Anecdotally, participants viewed alert systems as beneficial for addressing dementia-related incidents, enhancing community engagement, promoting independence, and providing peace of mind for care partners. Many shared success stories, including news reports of missing persons located through alert systems. A search and rescue director (P23) noted that: "The anecdotal evidence says that alerts like Silver Alerts and Amber Alerts work when used appropriately. If we can expand them to…even social media nowadays, because social media has geographical fencing available." Another search and rescue volunteer identified the lack of statistics on alert system effectiveness:

> There would be an added benefit if there're the statistics on the effectiveness of all of these programs, how often is it used? How often does it result in viable leads? How often

> does it result in a preponderance of false alerts? All that sort of data that could help us as a nation or as a locality determine whether this is a good investment in our time and effort. (P40)

Yet, there is limited research on impact of alert systems and measurement of their effectiveness. Participants acknowledged the weak evidence on the effectiveness of alert systems. A search and rescue volunteer shared this concern:

> Some search managers have spoken to the RCMP [Royal Canadian Mounted Police] afterwards, and they've just been told they were found by a member of the public, but it's unclear as to whether that the member of the public saw Silver Alert, or they just saw someone who looked lost or confused or something and attempted to assist. So, it's weak evidence and I would hesitate to call it evidence, in fact. (P13)

Participants advocated for rigorous research to assess the impact of alert systems and enhance the program. A service provider provided further details on this:

> I think we do need that academic study to really look at it because without that, we can't really improve it. We can improve the app a little bit, but to actually really take it to that level of the whole of Scotland knowing about it and using it. We've had 10,000 downloads but what I really want to know is how many people have actively sort of logged on? How many people have responded when there has been a Purple Alert? We need more behind it basically than just the anecdotal evidence of it. (P4)

Evaluating outcomes of alert systems in engaging the public to locate missing persons with dementia was highlighted as a critical phase in implementation of alert systems and the

KTA process. However, limited research on their impact and methods for measuring success has posed challenges for their implementation, adoption, and use.

In summary, findings from document review and stakeholder engagement were organized into three adapted KTA phases: identifying the problem, assessing barriers, and evaluating outcomes. (Graham et al., 2006). There is variability in implementation of alert systems and the perceived challenges to implementation or use of alert systems were classified under individual-level (*limited understanding of alert systems, privacy concerns, alert fatigue*) and organizational or system-level barriers (*sustainability*, *accessibility, privacy legislation*). Despite these challenges, participants highlighted facilitators to support implementation and use of alert systems such as designing simple, accessible systems, incorporating data protection safeguards, implementing community-based or localized alerts, and securing government or third-party funding.

6.5. Discussion

Guided by the KTA framework, this study aimed to understand the conditions surrounding the implementation and use of alert systems for missing persons with dementia. Three KTA phases were adapted: identifying the problem, assessing barriers to alert system implementation and use, and evaluating outcomes (Graham et al., 2006). We conducted a document review of policies, including legislation and procedures related to alert systems and interviews with key stakeholders from Canada, Scotland, and the US, including people with lived experience. Grounded in relativist epistemology and a constructivist lens (Yin, 2018), this study acknowledges multiple stakeholder perspectives as co-created realities. Rather than universal

truths, findings reflect participants' experiences and perspectives, offering a nuanced understanding of the conditions surrounding alert systems implementation and use.

In the first phase of the Action Cycle in the KTA framework, identification of the problem, findings highlight variability in implementation of alert systems across Canada, Scotland, and the US emphasizing the need for clear policies. In another important phase of the KTA process, assessing barrier, the perceived challenges to implementation or use of alert systems were classified under individual-level (*limited understanding of alert systems, privacy concerns, alert fatigue*) and organizational or system-level barriers (*sustainability*, *accessibility, privacy legislation*).

Alert systems vary in name and function across locations, contributing to limited public understanding. For example, the term “Silver Alert” is used differently in Canada and the US. In the US, Silver Alerts broadcast information about missing persons through large-scale public channels like highway signs, radio, and TV (Carr et al., 2010; Gergerich & Davis, 2017). In Canada, there is no national or province-wide Silver Alert system, and "Silver Alert" is often associated with police use of public or social media. BC Silver Alert is a community-led, localized system where subscribers receive notifications based on their preferred method and geographic area (BC Silver Alert, n.d.). Similarly, before its discontinuation, Purple Alert allowed families to notify community subscribers within a specified location (Adekoya et al., 2021).

Privacy concerns, including privacy legislation, were perceived as negatively impacting both the implementation and adoption or use of alert systems (Adekoya, Daum, Neubauer, et al., 2025; Gergerich & Davis, 2017; Petonito et al., 2013), particularly in Canada. While safety may

outweigh privacy rights, it is essential to balance both by considering end-users' perceptions and preferences regarding sharing their information with others (Adekoya, Daum, Neubauer, et al., 2025). Although collecting and publicly disclosing personal information is necessary for engaging the public in locating missing persons, individuals living with dementia still have the right to control how their data is shared (Liu et al., 2022). To protect their privacy, alert systems need to be designed with transparency, strong security measures, and flexible data-sharing options (Neubauer, Daum, et al., 2021).

Participants from Canada, Scotland, and the US, had different perceptions of alert fatigue. While concerns about alert fatigue were reported in all three countries, those not receiving mobile alerts, particularly in Canada and the US, perceived hypothetical fatigue. Research indicates that excessive alerts in alert systems, including Silver Alerts can overwhelm recipients and reduce effectiveness (Gier et al., 2017). Participants recommended a localized approach, which studies show may be more desirable, as most missing persons with dementia are found near their last known location (Miguel-Cruz et al., 2024; Neubauer, Daum, et al., 2021).

Sustainability and accessibility were listed as important considerations in implementing and adopting alert systems. Similar studies highlight sustainable funding and high cost of technology as barriers (Boyle et al., 2022; Gkiolnta et al., 2025). Challenges related to sustainable funding may have contributed to the discontinuation of Purple Alert (Alzheimer Scotland, n.d.). The long-term effectiveness of alert systems depends on sustained commitment and resource allocation. Assessing implementation costs and securing funding from government and non-governmental partners is crucial. Support from policymakers and community organizations is essential for sustainable operation.

Participants stressed the importance of designing user-friendly alert systems with multilingual support and accessible technology. Research supports this, highlighting that successful adoption requires simplicity, flexibility, clear instructions, and features like larger fonts (Boyle et al., 2022; Gkiolnta et al., 2025; Guisado-Fernández et al., 2019). Additionally, addressing cost concerns and promoting digital literacy are essential for effective implementation and use of technology (Boyle et al., 2022; Guisado-Fernández et al., 2019) such as alert systems.

Another key phase in the KTA framework is evaluating the impact of knowledge or interventions to determine their effectiveness. Continuous evaluation, rather than a one-time assessment, is essential to measure success and ensure efforts are worthwhile (Graham et al., 2006). Several participants indicated that the lack of evidence on effectiveness hindered the implementation and adoption of alert systems. For alert systems to be effective, individuals must not only recognize missing persons but also verify their identity. This study highlights that most evidence is anecdotal, as impact evaluations and cost-effectiveness studies are rarely conducted (Gier et al., 2017; Petonito et al., 2013; Yamashita et al., 2013). The discontinuation of Purple Alert may also be related to little evidence of impact for its return on investment. Closing this evidence gap is necessary for adoption and sustainability of alert systems.

6.5.1. Future Directions

Successful implementation of alert systems requires clear policy, evidence-based design, strategic planning, and collaboration among stakeholders, including policymakers, first responders, community organizations, researchers, and individuals with lived experience. Evaluation is essential for measuring impact, guiding development, and informing decisions on scaling and funding.

A localized, opt-in alert system would allow users—community members and service providers—to receive notifications within specified geographic areas. A standardized national platform with localized customization would allow for quick responses across jurisdictions while safeguarding privacy. Individuals at risk of going missing and their care partners need to be able to securely upload relevant information, which would be shared only with subscribers and removed once the case is resolved.

Ideally, alert systems raise community awareness, educate the public— including first responders, and social and health care providers—on dementia and missing person risks, and ensure accessibility across networks and devices while being tailored to end users' needs. Another consideration is that alert systems provide guidance to Good Samaritans on assisting missing individuals when found. Funding for alert systems would be justified if based on evidence of positive impact.

6.5.2. Strengths and Limitations

This study's strength lies in its use of the KTA framework and multiple participants input across different contexts, providing deeper insights into barriers to implementing and adopting alert systems for missing persons with dementia. By incorporating perspectives from diverse stakeholders across three countries, it enhances generalizability beyond a single case study. Multiple case studies also allow for in-depth data collection, offering rich, real-world insights into implementation challenges. However, limitations include potential bias due to purposive sampling, which may have favoured participants with positive views on alert systems. Snowball sampling may have further contributed to an overrepresentation of individuals with shared interests, higher health or research literacy, and greater willingness to participate. Additionally,

most participants were White, limiting the study's ability to fully capture perspectives from racialized communities.

6.5.3. Conclusion

The study examined our gap in understanding the conditions surrounding the implementation and adoption or use of alert systems in Canada, Scotland, and the US, using the KTA framework to bridge research and practice for effective knowledge translation. Despite apparent public support for alert systems, there is variability in their implementation and related policies. Individual-level barriers include limited understanding of alert systems, privacy concerns, and alert fatigue, while organizational or system-level barriers involve sustainability, accessibility, and privacy legislation. Limited evidence on effectiveness stems from minimal evaluation. Effective implementation requires clear policy, evidence-based design, stakeholder collaboration, and ongoing assessment. A localized, opt-in system with accessibility, privacy protections, public education, and sustainable funding can enhance responsiveness and long-term success.

Studies 1 and 2 point to the need to explore the contextual factors shaping the implementation and use of alert systems to address dementia-related missing incidents. The next section presents the third and final study in this dissertation, which explored factors that may arise across various multi-level contexts to influence implementation of alert systems for locating missing persons with dementia. The CFIR (Damschroder et al., 2009) guided data collection and a systematic, comprehensive analysis of these factors.

Chapter 7: Study 3

Factors influencing implementation of alert systems for locating missing persons with dementia using the Consolidated Framework for Implementation Research

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7.1. Overview

People living with dementia are at risk of going missing and facing serious harm. Alert systems can enhance community involvement in locating missing individuals and mitigate these risks. While there are calls for such systems, factors influencing their implementation and related policies are not well understood. This study aimed to understand factors influencing the implementation and use of alert systems in Canada, Scotland, and the United States, using the Consolidated Framework for Implementation Research (CFIR). A document review and interviews with 40 stakeholders (those with lived experience, first responders, service providers, and policymakers) were analyzed thematically. Factors influencing alert systems implementation and use were identified across the five CFIR domains and related constructs: Intervention Characteristics (relative advantage, evidence strength and quality, cost), Outer Setting (end user needs and resources, cosmopolitanism, external policy and incentives), Inner Setting (culture, available resources), Characteristics of Individuals (knowledge and beliefs about the intervention), and Implementation Process (planning, engaging stakeholders, reflecting and evaluating). Findings suggest that effective implementation requires a comprehensive approach, strong policy commitments, investment, and stakeholder engagement. Participants also suggested community support, effective public education and staff training to improve awareness of alert systems. A structured evaluation process is crucial for assessing impact, guiding future improvements, and sustainability.

Keywords: Dementia, missing persons, alert system, Consolidated Framework for Framework for Implementation Research, Case Study.

7.2. Background

The prevalence of dementia has increased rapidly with the growth of older populations. Dementia imposes a significant financial burden worldwide, with costs reaching an estimated $1.3 trillion in 2019 (Wimo et al., 2023). The limited treatment options makes prevention, management, and comprehensive support for individuals living with dementia and their care partners a critical public health priority (Frankish & Horton, 2017).

Dementia increases one's risk of going missing and impairs wayfinding ability, making it challenging for individuals to navigate and identify familiar locations (Davis & Veltkamp, 2020). A missing person, whether gone intentionally or unintentionally, is someone whose whereabouts are unknown, posing safety concerns for them and others (Taylor et al., 2019).

Missing incidents can occur during everyday activities such as walking or driving, particularly when supervision is limited (Bantry White & Montgomery, 2015; Miguel-Cruz et al., 2024). In many situations, individuals are found by first responders or Good Samaritans (Miguel-Cruz et al., 2024). If not located within 24 hours, 50% of missing persons will experience serious injury or death (Rowe et al., 2011), often due to exposure to hypo or hyperthermia, drowning, or vehicle accidents (Kikuchi et al., 2019).

Missing incidents can contribute to increased healthcare use and more caregiver stress (Murata et al., 2021; Shalev Greene et al., 2019). The cost of missing person investigations varies across studies and regions. In Canada, locating a missing person with dementia ranges from $2,294 to $4,181 CAD (Neubauer, Miguel-Cruz, et al., 2021), while in the United States (US), costs can reach up to $1,500 USD (Yang & Kels, 2016). In the United Kingdom, 2013 estimates placed costs between £1,325.44 and £2,415.80 (Shalev Greene & Pakes, 2014).

The literature highlights the need for strategies to minimize the risk of going missing for individuals living with dementia while promoting their independence and health benefits of outdoor walking and exercise (Adekoya & Guse, 2019; Bantry White & Montgomery, 2015). A range of strategies—such as ID bracelets or necklaces, GPS devices, radiofrequency locators, alarms, mobile apps, and Bluetooth technology—have been used to assist in locating individuals living with dementia who go missing (Neubauer, Miguel-Cruz, et al., 2021; Yang & Kels, 2017). Given the urgency of locating missing persons with dementia, alert systems can quickly engage communities in search efforts by using mediums such as media broadcasts, highway signs, and mobile apps to share critical information (Gergerich & Davis, 2017).

Community-based alert systems, such as BC Silver Alert in Canada, and Purple Alert in Scotland, can help locate missing persons with cognitive impairment. BC Silver Alert notifies subscribers about missing persons with dementia or autism through social media or SMS (Short Message Service) (BC Silver Alert., n.d.). Purple Alert enabled care partners to notify the community about missing persons with dementia but was discontinued probably due to limited evidence and sustainability challenges (Adekoya et al., 2021; Alzheimer Scotland, n.d.). Public alert systems for locating missing persons with dementia exist in the US. For example, in the US, the Silver Alert program is widely used by police to inform the public about missing individuals living with dementia or cognitive impairments (Ruppalt, 2020).

While there is a perceived need for alert systems by the public, factors influencing their implementation and related policies remain poorly understood, especially in Canada. This study is part of a larger project examining the development and implementation of alert systems and policies such as legislation and procedures in Canada, Scotland, and the US. The authors aimed to understand factors that may arise across various multi-level contexts to

influence implementation of alert systems to locate missing persons with dementia, using the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al., 2009) to guide data collection and a systematic, comprehensive analysis of these factors.

7.2.1. Theoretical Framework

The Consolidated Framework for Implementation Research (CFIR) is a meta-theoretical framework that is composed of 39 constructs across five domains and identifies key factors influencing program implementation (see Table 4) (Damschroder et al., 2009). These domains include: *Intervention characteristics* (e.g., relative advantage and evidence) which affect how well an intervention fits within an organization and how individuals respond to it. The *outer setting* (e.g., external policy and incentives) includes the context within which an organization resides, while the *inner setting* (e.g., culture) refers to factors within an organization that influence implementation. *Characteristics of individuals* refer to the knowledge, beliefs, and influence of stakeholders. The implementation *process* involves activities such as planning, engaging stakeholders, and evaluating progress to drive successful adoption. These domains interact in complex ways, helping to explain why implementation succeeds in some settings but not in others, making CFIR a valuable tool for formative evaluations (Damschroder et al., 2009; Keith et al., 2017). Not all constructs apply to every project; instead, they should be assessed and selected based on their relevance (Damschroder et al., 2009). For the purpose of this research, the authors focused on the constructs that are applicable and relevant to findings.

Table 4. The Consolidated Framework for Implementation Research domains and constructs (Damschroder et al., 2009)

Domain	Construct
Intervention Characteristics	Intervention Source
	Evidence Strength and Quality
	Relative Advantage
	Adaptability
	Trialability
	Complexity
	Design Quality and Packaging
	Cost
Outer Setting	Patient Needs and Resources
	Cosmopolitanism
	Peer Pressure
	External Policy and Incentives
Inner Setting	Structural Characteristics
	Networks and Communications
	Culture
	Implementation Climate (Tension for Change, Compatibility, Relative Priority, Organizational Incentives and Rewards)

	Readiness for Implementation (Leadership Engagement, Available Resources, access to Knowledge and Information)
Characteristics of Individual	Knowledge and Beliefs about the Intervention
	Self-efficacy
	Individual Stage of Change
	Individual Identification with Organization
	Other Personal Attributes
Process	Planning
	Engaging (Opinion Leaders, Formally Appointed Internal Implementation leaders, Champions, External Change Agents)
	Executing
	Reflecting and Evaluating

7.3. Methods

Refer to Chapter 4, page 36 for methods.

7.4. Results

This section provides an overview of BC Silver Alert, Purple Alert, and the US Silver Alert (see Table 5) and the factors influencing the implementation and use of alert systems, as well as key barriers, based on the review of policy documents and stakeholder engagement.

Table 5. Overview of BC Silver Alert, Purple Alert, and US Silver Alert

Country	Name of Alert System	Type	Key Features
Canada	BC Silver Alert.	Community-based. Developed by Sam Noh and Michael Coyle in 2014.	Scans police databases and sends alerts via social media or SMS (Short Message Service) to subscribers within a 10 km radius of a missing person with dementia or autism (BC Silver Alert., n.d.).
Scotland	Purple Alert (discontinued in 2024).	Community-based (app). Developed by Alzheimer Scotland in 2015.	Enables families to notify community users about missing relatives with dementia (Adekoya et al., 2021; Alzheimer Scotland, n.d.).
United States	Silver Alert. Terminology for Silver Alert varies across states (e.g., Gold Alert, Senior Alert).	State-wide and, legislated. Introduced in 2006.	Allows police to broadcast information about missing persons with dementia via media, emergency alerts, or highway signs; names and protocols vary by state (Gergerich & Davis, 2017).

7.4.1. Factors Influencing Implementation of BC Silver Alert, Purple Alert, and US Silver Alert

Factors influencing implementation and use of alert systems are presented across the five CFIR domains and corresponding constructs found to be contextually relevant (see Figure 2): *Intervention Characteristics* (relative advantage, evidence strength and quality, cost), *Outer Setting* (end user needs and resources, cosmopolitanism, external policy and incentives), *Inner Setting* (culture, available resources), *Characteristics of Individuals* (knowledge and beliefs about the intervention), and *Implementation Process* (planning, engaging stakeholders, reflecting and evaluating).

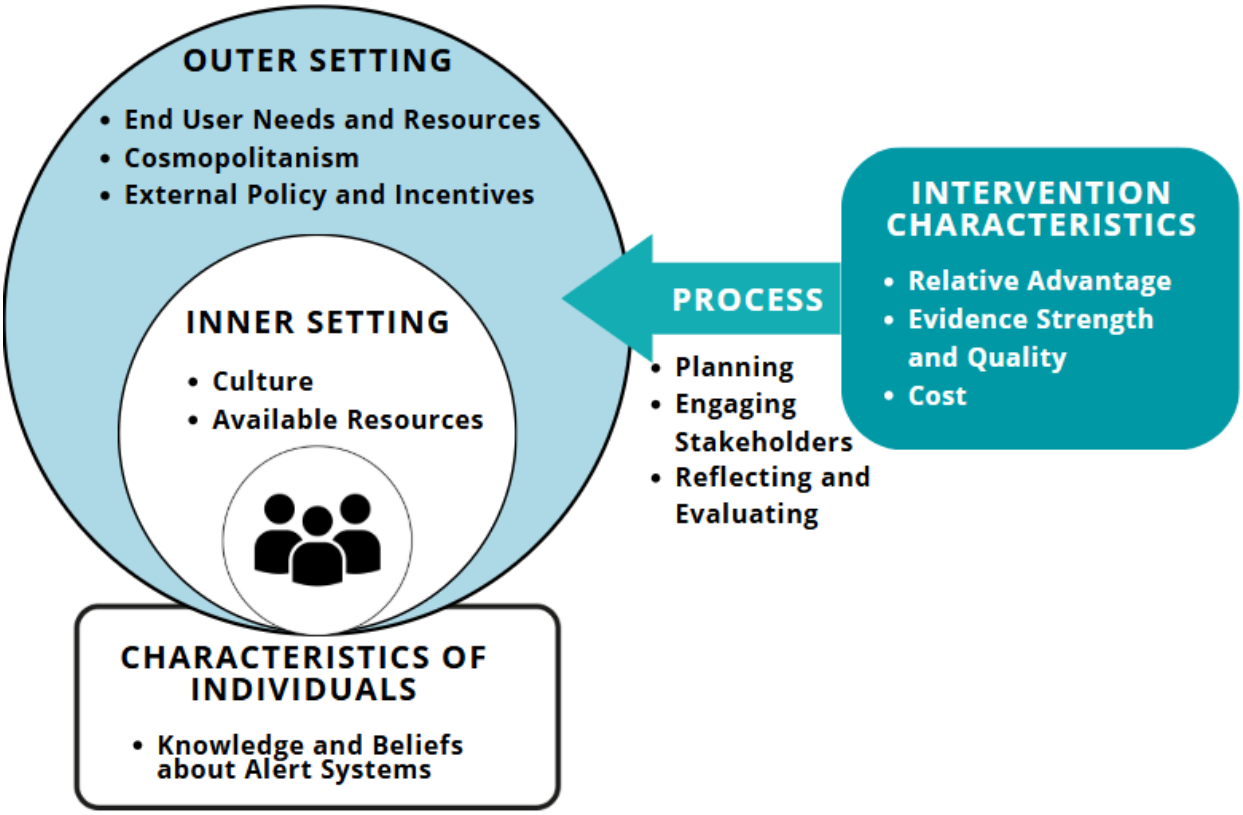

Figure 2. Factors Influencing Implementation of Alert Systems for Locating Missing Persons with Dementia. Adapted from Damschroder et al., 2009.

7.4.1.1. Intervention Characteristics

The first domain of the CFIR examines factors influencing the implementation of alert systems within an organization, such as 1) relative advantage, 2) evidence strength and quality, and 3) cost. Each one is described in more detail.

Relative Advantage

This construct relates to participants' views on the advantages of implementing alert systems over alternative solutions. Participants noted several advantages, including saving lives,

increasing community awareness, engaging a broader audience, fostering a sense of community, enhancing safety and independence for individuals living with dementia, and providing emotional support and peace of mind to both individuals and their care partners. A participant living with dementia and advocating for Silver Alert in Canada highlighted security as a potential key benefit of the system:

> Silver Alert will help their families find people by letting community know that everybody should be looking for a particular person. It still allows people with cognitive issues to go out and to go walking, but with some security. (P11)

Similarly, a search and rescue volunteer with over 40 years of experience emphasized the value of Silver Alert in the US, stressing the importance of quickly engaging the public in locating missing persons with dementia:

> The Silver Alert system is great because when looking for missing persons, you need a lot of eyes out there looking and you want to get the general public. There's kind of an axiom in search and rescue circles, the more the public knows about a missing person, the better the chances of them finding the missing person and specifically, dementia or Alzheimer's. They'll find them faster than law enforcement or search and rescue. (P29).

Participants compared alert systems to other strategies, such as GPS-based locating technologies, used to mitigate the risk of individuals living with dementia. They emphasized that alert systems should complement—not replace—these strategies, underscoring the importance of using multiple strategies to reduce the risk of individuals living with dementia going missing. An experienced search and rescue volunteer highlighted the limitations of GPS devices and other locating technologies, noting that they are not always foolproof:

> GPS trackers and other trackers are not foolproof. They can be left at home; they can be removed. And they can stop working. So, the battery can die or whatever else. If there's a GPS coordinate, that's fantastic but that's not always or often the case. If you're now looking for a lost person without GPS or without kind of a method of knowing where they are, they're truly in that case lost, then Silver Alert is an excellent way of corralling the resources that you need to solve that, to resolve that emergency. (P13)

Under this construct, participants highlighted the perceived benefits of alert systems and emphasized their role in complementing other strategies to locate missing persons with dementia, influencing their implementation.

Evidence Strength and Quality

The second construct under *intervention characteristics* examines stakeholders' perceptions of the quality and validity of evidence supporting the effectiveness of alert systems. Participants had mixed views, with some stating that evidence was limited, while others believed there was no proof that alert systems achieve their intended outcomes. A police officer stated that there has been a push back from implementing Silver Alert for eight years in Canada due to a lack of evidence on its effectiveness, which indicates a need for evidence on impact of Silver Alert:

> We've been saying no because we don't think it's effective. And it's going to be information overload. (P12)

Others shared anecdotal evidence of alert systems successfully locating missing persons, particularly from US reports. A service provider involved in implementing Scotland's Purple Alert noted:

> When we scan the landscape…there are Silver Alert in the States. Silver alert gave us enough evidence to be able to project our outcomes. (P2)

While a search and rescue director remarked that evidence on the US Silver Alert is mainly anecdotal:

> So, all of our information here in the US is going to be anecdotal. There is no one statistical collection body that is the saying, hey, these are all the missing people, and this is how they were found. It just doesn't exist, which is kinda remarkable. Some states don't track it. The anecdotal evidence says that alerts like silver alerts and Amber Alerts work when used appropriately, they work. (P23)

Under this construct, participants noted that evidence supporting the effectiveness of alert systems is largely anecdotal, highlighting the need for more robust data.

The last construct discussed under the *intervention characteristics* domain of the CFIR is cost.

Cost

Cost refers to expenses associated with developing, implementing, and maintaining alert systems. Participants noted costs such as app development, platform subscriptions, staffing, and training. A policymaker discussed the financial considerations related to Silver Alert:

> There's a couple of cost pieces. One is the cost to maintain the platform upon which the alert goes out. Secondly, there's a cost to an individual, personnel, a full-time employee, to manage the program. (P39)

Participants highlighted government and non-governmental funding as a key facilitator in implementing alert systems. A service provider highlighted that the development and implementation of Purple Alert was largely funded through charitable donations, emphasizing the crucial role of fundraised income in covering its costs:

> I think the main costs have been obviously for a developer to create the app. And I think, because as an organization, Alzheimer Scotland could see this as a real priority to tackle. (P1)

Another service provider elaborated on the costs associated with developing Purple Alert:

> So, every piece of work that we do is generally funded somehow by either stakeholders or government. And that was really fundamental for us to develop protocols the way we did, we definitely used some of that funding for that. We were also very lucky that the developers back then were very helpful without charging us a huge amount of money at all. So that really helped. Because an app can cost over 100,000 Pound designing an app, so it's very difficult to do that kind of stuff if you don't have a lot of money. (P2)

Key factors influencing alert system implementation and use in the *intervention characteristics* domain included relative advantage, evidence strength and quality, and cost. Participants highlighted benefits such as increased community awareness and emotional support but noted limited evidence on effectiveness of alert systems. Key facilitators included

government and non-governmental funding and the need for multiple strategies to reduce the risk of going missing. Overall, the intervention characteristics played a key role in the implementation of alert systems.

7.4.1.2. Outer Setting

The second CFIR domain, *outer setting*, examines external factors influencing implementation and use of alert systems, such as 1) end user needs and resources, 2) cosmopolitanism, and 3) external policy and incentives. Each one is described in more detail.

End User Needs and Resources

This first construct examines how well an organization understands and prioritizes end users' needs. Participants emphasized the importance of alert systems in addressing the rising challenge of missing person incidents and reducing harm to those at risk. Many viewed missing person incidents as an emergency requiring public assistance. An experienced search and rescue coordinator highlighted the role of alert systems such as Silver Alert in responding to missing person incidents:

> Having that Silver Alert tool that we can put that messaging out to everybody quickly, is really key because when we do have that at risk dementia search…the longer they're out there, the more likely they are to be harmed. (P30)

Participants such as first responders and service providers emphasized their duty of care in protecting vulnerable individuals, including those with dementia at risk of going missing, and they considered the role of alert systems in this effort. A police officer involved with Purple Alert elaborated on this:

> We recognized the fact that there was a possibility that people living with dementia would go missing in our community. We also realized that these people are very vulnerable should they go missing and we have a duty of care to really look after this group in our community. Our objectives, goals and visions, it's really to make sure that these people are supported fully by [us], within the Community. (P8)

Under the *end user needs and resources* construct, participants stated alert systems were important for addressing the increasing missing person incidents. They also advocated for raising awareness about the risks of going missing and the role alert systems can play in supporting timely search efforts.

The second factor discussed under the *outer setting* domain of the CFIR is cosmopolitanism.

Cosmopolitanism

Cosmopolitanism refers to the extent to which an organization is networked with external organizations, often enabling more agile implementation. Participants emphasized that collaboration with external partners played a crucial role in developing and implementing alert systems. These collaborations involved a diverse range of stakeholders, including individuals, community groups, government agencies, and non-governmental organizations. A service provider highlighted the various partners involved in the development of Purple Alert, noting that some organized local events to promote both the app and broader missing persons initiatives:

> Purple Alert was developed by Alzheimer Scotland. We lead the development of it, but we co-designed it with a co-production group. We worked very closely with emergency

> services, first of all, Police Scotland, but also fire brigades, ambulances, Mountain Search and Rescue, NHS, which is the National Health Service in the UK. We worked closely of course with people with dementia and their families, Health and Social Care Partnerships, which are essentially city councils. (P1)

Participants also emphasized the importance of partnering with external organizations—such as police services, Search and Rescue Associations, universities, and Alzheimer Societies—to provide training for first responders on how to interact with individuals living with dementia. First responders' preparedness is important, making such training essential. Additionally, attending local, national, and international conferences on missing persons and search and rescue was seen as valuable for knowledge-sharing. A policymaker highlighted the collaborative nature of these efforts, stating,

> It really involved coordinating with community organizations who provided services and advocacy for persons with dementia and Alzheimer's, so that they understood what the Silver Alert program. (P39)

A search and rescue coordinator further underscored the need for public education on Silver Alert.

> I think that the more training we can do, the more we explain to the public the value to them, as potentially the loved one of the missing person, but also as an unknowing searcher. If we can explain to the public how they can take action based on the information they get, and they can help save a life. I think that's important. (P23)

The *cosmopolitanism* construct emphasized the importance of networking with external organizations in implementing alert systems as well as ensuring proper training of first responders.

The last construct discussed under the *intervention characteristics* domain of the CFIR is external policy and incentives.

External Policy and Incentives

This construct highlights external strategies that influence the implementation of alert systems, including policies, legislation, and regulations from governmental or central entities, external mandates, recommendations, and guidelines.

Documents and stakeholder engagement reveal that policies, legislation, and procedures related to alert systems, their standardization, and search strategies for people at risk of going missing vary across regions. The implementation of alert systems and related policies involved collaborative advocacy efforts by families, community organizations such as Alzheimer's Societies, policymakers, legislators, police, and health and social services (California Legislative Information, 2023; Legislative Assembly of British Columbia, 2014; Legislative Assembly of Ontario, 2023; New Jersey Legislature, 2016; Police Scotland, 2025; Scottish Government, 2017; The National Silver Alert Act, 2008).

Government and charitable funding (incentives) played a key role in developing and implementing alert systems. Alzheimer Scotland's innovations and development team received funding from the Scottish Government to explore technology that supports individuals living with dementia and their care partners, contributing to the creation of Purple Alert. In contrast,

BC Silver Alert relied solely on individual and volunteer contributions, with no government funding. In the US, state-wide Silver Alert programs receive funding either from state governments or private nonprofit organizations.

In the *outer setting* domain, key factors influencing the implementation and use of alert systems were identified as end user needs and resources, cosmopolitanism, and external policy and incentives. Participants highlighted the role of alert systems in addressing missing person incidents and reducing harm. Collaboration with stakeholders—such as people with lived experience, community groups, government and non-governmental organizations—was key to development and implementation. Policies and legislation aimed to shape alert system standardization, though their implementation and search approaches varied by region.

7.4.1.3. Inner Setting

The third CFIR domain identifies factors within an organization that influence implementation, such as 1) culture and 2) available resources. Each one is described in more detail.

Culture

Culture reflects the norms, values, and underlying assumptions of an organization regarding alert systems and their implementation. Participants noted that many within their organizations supported implementing alert systems to enhance the safety of individuals at risk of going missing, while others mentioned that adoption varied across organizations, such as police agencies. A service provider emphasized that Silver Alert aligns with their organization's values, stating,

> We try to use every tool that's available to us to locate the person who's gone missing and reunite them with their caregivers or family. Silver Alert gives us another way of engaging with the media. (P40)

A search and rescue volunteer emphasized his organization's commitment to finding missing persons even though an alert system is yet to be implemented, saying,

> Our mandate is to find missing and lost persons as quickly as possible. In terms of values, these folks fit under the vulnerable sector. We have an obligation and duty to act on their behalf. (P19)

However, a service provider highlighted the need for a more open culture surrounding Purple Alert to further support its effectiveness:

> I think the culture could have been a bit more opened. I think there's always a bit of misconception around designed services and design products. Not everyone really gets it. So, there was a little bit of maybe misunderstanding or although I was trying to be as clear as I could. I would say some staff were not as open. (P1)

This construct highlights the need for a positive and open organizational culture to support the successful implementation of alert systems.

The last construct discussed under the *inner setting* domain of the CFIR is available resources.

Available Resources

This construct refers to the resources allocated for the implementation and ongoing operations of alert systems, including money, training, education, and time. Participants shared that although some resources on alert systems, such as toolkits, Frequently Asked Questions (FAQs), and online support, may be available on organizational or government websites, these resources are often limited. Additionally, sustainable funding, staff training and the time dedicated to implementing and promoting alert systems are constrained. A service provider expressed concerns about the limited resources, particularly in terms of staff training within the organization:

> So, we've got online resources on the Alzheimer Scotland's website, there is a description of Purple Alert and what it does. And we do have some marketing resources, as in we've got leaflets, and pictures and stuff like leaflets and postcards and things that we can give out to people. But we don't do any training per se. It's more awareness raising of the app. I think given the uptake, it's an area that we could work on. But again, our resources are limited. (P4)

Participants also discussed the limited public and community support, as well as limited resources, to help ensure the safety of individuals at risk of going missing. They believed greater efforts are needed to improve safety at home and in the community, along with better access to information about available resources. A search and rescue coordinator also expanded on the lack of community support, noting that while resources on alert systems may be available to first responders, they are often insufficient:

> There's not a whole lot of support that goes out to individuals or communities really. It's the training of law enforcement on what are the criteria that there is this Silver Alert

> process, and this is how you get it, who you call to go get it. Maybe there is some more marketing we can be doing about [why] this is important, we don't want you shutting this off… you might be that person that sees that person and can help them. (P30)

This construct emphasizes the importance of resources—such as funding, training, education, and time—for implementing alert systems. However, participants raised concerns about their limited availability and the importance of ensuring sustainability.

Key factors influencing alert system implementation and use in the *inner setting* domain included organizational culture and resource availability. While many organizations supported alert systems to enhance safety, resources were often limited. Participants noted constraints in sustainable funding, staff training, and time dedicated to implementation and promotion.

7.4.1.4. Characteristics of Individuals

The fourth CFR domain, *characteristics of individuals,* refers to stakeholder's knowledge and beliefs about alert systems and their implementation.

Knowledge and Beliefs about Alert Systems

This is the only construct identified under the *characteristics of individuals* domain. Overall, many participants had a positive attitude toward alert systems, valuing them highly and being generally familiar with how they work. They viewed alert systems as an essential tool in a comprehensive approach to keeping individuals living with dementia—who are at risk of going missing—safe, while addressing the rising number of dementia-related missing persons incidents. A care partner advocating for the implementation of an alert system in Canada stated,

> I believe it's long overdue. If we look at how Amber alerts and other alert systems have really benefited the ability to find people, it's an important tool that gives people a little more security. (P26)

Many participants believed that alert systems can enable people living with dementia to maintain their independence and remain within their communities. A participant living with dementia stated:

> I believe that keeps people well for longer. I am a 100% believe in trying to allow people to stay on their own for as long as they can. (P36)

Participants also highlighted the perceived value of alert systems, emphasizing community support and collaboration with other organizations. A service provider, P1, described Purple Alert as a "critical tool and service for the community of people living with dementia". Another search and rescue volunteer highlighted the importance of Silver Alert, stressing the ultimate goal of locating missing individuals and providing closure for care partners:

> My opinion of the Silver Alert is that it's a great program. It brings information to the public that might not normally be out there. The end goal is help get them back to their family or back to where they belong…. And even in the worst-case scenario, we can give a family closure. (P38)

Knowledge and beliefs about alert systems were key factors in the *characteristics of individuals* domain. Participants generally had a positive attitude, recognizing alert systems as essential in addressing dementia-related missing incidents while supporting independence. They

emphasized the value of community support and collaboration in enhancing implementation and effectiveness of alert systems.

7.4.1.5. Implementation Process

The last CFIR domain, *implementation process*, highlights strategies for implementing alert systems, such as 1) planning, 2) engaging relevant stakeholders, and 3) reflecting and evaluating implementation. Each one is described in more detail.

Planning

Effective planning for an intervention implementation involves developing structured methods and tasks in advance. Participants emphasized the importance of conducting environmental scans to identify existing resources and prevent duplication. For example, before developing and implementing Purple Alert and BC Silver Alert, an environmental scan of existing strategies, such as the US Silver Alert, was conducted. A service provider stated:

> I can't remember now the papers or the literature we would have read in 2015/2016. But… there are Silver Alert in the States. And we very much based Purple Alert on the same, very similar concept. (P2)

Some participants emphasized the value of conducting thorough background research and maintaining international connections to inform their approach. A policymaker underscored that the implementation of Silver Alert differs across the US:

> It is delegated to the state level here in the US, so each state will identify their policies and any search and rescue programs for locating missing persons. For example, in Wisconsin, Silver Alert was developed through legislation in 2014. (P39)

This construct emphasizes the importance of effective planning, including prior research or environmental scans, to support the successful implementation of alert systems.

The second construct discussed under the *implementation process* domain is engaging stakeholders.

Engaging Stakeholders

This construct focuses on engaging the right individuals in the implementation and use of the intervention through a combined strategy that includes social marketing, education, role modeling, training, and similar activities. Participants identified key stakeholders who were, or should be, involved in the implementation and marketing of alert systems. These stakeholders included people living with dementia, care partners, community organizations, emergency services, health services, social and transportation services (such as police, search and rescue, firefighters, ambulance, long-term care, retirement homes, and hospitals), governments (state or provincial and municipal), media, public libraries, researchers, and the general public [Good Samaritans].

A service provider outlined the implementation process of Purple Alert, which involved developing a prototype that was tested in live workshops across three settings (Glasgow, Edinburgh, and Tain) by mapping missing persons scenarios:

> We had the prototype, we needed to test it. We had a live workshop where we recreated a missing person scenario. And we had police, students, Health and Social Care Partnerships, we had loads of people around the tables. (P2)

A care partner from Canada highlighted the challenges of stakeholder engagement and emphasized the need to involve government entities, such as the BC Seniors Advocate's Office in developing policies or legislation to support BC Silver Alert at the provincial level:

> [We are] getting back into discussions with the government and then seeing how we can formalize some sort of platform for this, as well as developing the policies and whatever regulations. (P14)

A policymaker and experienced first responder discussed past attempts to implement Silver Alert in some parts of Canada and highlighted that rolling it out could take years, raising concerns about the lengthy timeline:

> For it to go through the provincial government or law enforcement, we need laws, we need legislation. We just can't do it. And that process in itself can take years, even if it's successful to do and implement, and by the time we hit that, then we'll be transitioned to something new and better on the technology front. (P20)

This construct underscores the importance of involving the right individuals—including those with diverse experiences and organizations serving people living with dementia and their care partners—through various strategies to support the implementation of alert systems.

The last construct discussed under the *implementation process* of the CFIR domain is reflecting and evaluating.

Reflecting and Evaluating

This construct refers to both quantitative and qualitative feedback on alert systems and the quality of their implementation to assess progress and experiences. Feedback on the progress and quality of alert system implementation is limited. Participants noted that the implementation of alert systems often lacks an evaluation process, which can hinder evidence of alert system effectiveness. Some participants suggested that having statistics on Silver Alert, such as its frequency of use, successes, and rate of false alerts, would offer added value to the evaluation and improvement of the alert system.

A service provider noted that quantitative data on Purple Alert focused on the number of app downloads and issued alerts rather than its effectiveness, which was primarily assessed through anecdotal feedback:

> I think it was a bit of quantitative measurement in terms of the numbers of users that are downloading the app and the numbers of alerts being raised. The qualitative was more about either the messaging when people were commenting on the app or there was an alert but also the return discussion. So, we did that in a very informal way, when someone returned home, I would pick up the phone and speak to the person and we would get a lot of feedback from there. (P2)

Under this construct, participants emphasized the need for feedback on alert systems and their implementation, noting that limited feedback can hinder their adoption and effectiveness.

Key factors in implementing alert systems in the *implementation process* domain included planning, stakeholder engagement, and reflecting and evaluating. Participants

conducted environmental scans to identify resources and avoid duplication. They highlighted the importance of involving key stakeholders through strategies like education, training, and social marketing. However, limited evaluation processes hinder efforts to assess the effectiveness of alert systems.

In summary, factors influencing alert system implementation and use spanned the five CIFR domains and relevant constructs: *Intervention Characteristics* (relative advantage, evidence strength and quality, cost), *Outer Setting* (end user needs and resources, cosmopolitanism, external policy and incentives), *Inner Setting* (culture, available resources), *Characteristics of Individuals* (knowledge and beliefs about the intervention), and *Implementation Process* (planning, engaging stakeholders, reflecting and evaluating). Participants noted benefits such as community awareness and emotional support. Implementation relied on collaboration with people with lived experience, community groups, government and non-governmental organizations and policies; however, their standardization varied across regions. Organizational culture and resource availability were critical, with challenges such as sustainable funding, staff training, and time constraints. Effective planning, stakeholder engagement, and evaluation were emphasized, but a lack of evaluation processes hindered efforts to assess alert system effectiveness.

7.5. Discussion

This study aimed to understand the factors that influence the implementation and use of alert systems for locating missing persons with dementia across various multi-level contexts, using the CFIR as a guiding framework. The CFIR provided a conceptual lens for exploring key influences on alert systems implementation and structuring data analysis. The study

involved a document review of policies, including legislation and procedures related to alert systems, as well as interviews with key stakeholders from Canada, Scotland, and the US Findings highlight factors influencing the implementation and use of alert systems across all five CFIR domains and their related constructs: *Intervention Characteristics* (relative advantage, evidence strength and quality, cost), *Outer Setting* (end user needs and resources, cosmopolitanism, external policy and incentives), *Inner Setting* (culture, available resources), *Characteristics of Individuals* (knowledge and beliefs about alert systems), and *Implementation Process* (planning, engaging stakeholders, reflecting and evaluating). Through the CFIR, we gained insights into how different contextual factors within these domains shape the implementation and adoption or use of alert systems.

Participants shared their perceptions of alert systems, discussing how alert systems align with their organizations' beliefs (intervention characteristics) and the attitudes and value they placed on alert systems (characteristics of individuals). Overall, participants had a positive perception of alert systems, and their familiarity with them may have influenced their responses, as well as their general acceptance and willingness to implement and use alert systems. However, some participants expressed concerns about limited evidence demonstrating that alert systems achieve their intended outcomes.

There was a strong emphasis on the idea that alert systems need to complement, rather than replace, other strategies for locating missing persons with dementia. Similarly, existing research highlights the importance of employing multiple strategies to reduce the risks of individuals living with dementia going missing (Neubauer, Miguel-Cruz, et al., 2021; Shalev Greene et al., 2019). Reliance solely on locating technologies like GPS devices is not recommended, as these solutions can fail or create a false sense of security due to poor battery

performance, high costs, and ethical concerns such as privacy (Adekoya et al., 2021; Freiesleben et al., 2021; Neubauer et al., 2018).

Participants appeared to conceptualize evidence on alert systems primarily based on non-empirical sources or anecdotal reports, reflecting the limited research available on their effectiveness. Consistent with our findings, the literature indicates that evidence on alert systems remains largely anecdotal, with no studies examining their cost-effectiveness (Gier et al., 2017; Petonito et al., 2013; Yamashita et al., 2013). This lack of robust evidence may have presented a barrier to the implementation and adoption of alert systems, particularly in Canada.

Cost considerations related to the development, implementation, and maintenance of alert systems were also discussed in the context of broader challenges, such as sustainability. Funding and resource constraints were identified as a significant challenge in meeting end-user needs and ensuring the long-term viability of these systems. For example, Purple Alert, which operated for seven years, was discontinued in 2024 (Alzheimer Scotland, n.d.) probably due to sustainability challenges and a lack of evidence demonstrating its effectiveness. Similarly, BC Silver Alert has struggled with sustainability and expanding its outreach, facing limited government support, as noted by participants.

External factors influencing the implementation and use of alert systems (outer setting) were identified, with organizations often basing their decisions on their perceptions or assessments of the need for such systems. Many participants believed that alert systems have the potential to address end-user needs, particularly in responding to the growing challenge of missing person incidents and reducing harm to those at risk. The descriptions of these needs aligned with findings in the literature and the experiences of individuals living with dementia and

their care partners (Adekoya, Daum, Neubauer, et al., 2025; Gergerich & Davis, 2017; Petonito et al., 2013).

Additionally, a strong sense of legal and ethical responsibility to protect vulnerable individuals, such as those at risk of going missing, emerged as a key driver behind advocacy efforts and the implementation of alert systems. Participants also highlighted that their organizations recognized the obligation to ensure safety and well-being, further reinforcing the motivation to implement or adopt alert systems.

Multi-agency collaboration is a key consideration in implementing alert systems. Participants reported having strong partnerships with external organizations across various sectors (cosmopolitanism), including emergency services, social and health services, and academic institutions. These collaborations also helped ensure that first responders receive proper training and are well-prepared to fulfill their duty of care. Studies have emphasized the importance of a collaborative approach in engaging diverse stakeholders in the development and implementation of alert systems (Adekoya et al., 2021; Neubauer, Daum, et al., 2021). This approach is also reflected in national dementia strategies to improve the quality of life of people living with dementia and their care partners, and adopted by several countries, including Canada (Government of Canada, 2021a) and Scotland (Scottish Government, 2023).

External policies and incentives, including government funding and charitable donations, play a crucial role in implementation as they provide direction, resources, and support needed to achieve successful implementation. However, how alert systems and related policies are implemented differs across different regions. Consistent with our findings, research highlights that policies, often shaped by political, social, and economic contexts, influence both the

perception and implementation of interventions (Mugwagwa et al., 2015). Policies and legislation can also provide guidelines on resource allocation. For example, the US National Silver Alert Act outlines funding mechanisms to support the implementation of Silver Alert systems (The National Silver Alert Act, 2008).

Factors within organizations, such as culture and available resources, play a crucial role in the implementation and use of alert systems (inner setting). Organizational culture can serve as either a facilitator or barrier, depending on the context, and is essential for the sustainable implementation of evidence-based practices (Melnyk, 2016). Some participants described a culture that was supportive and receptive to implementing alert systems, which facilitated their adoption. Conversely, a lack of openness—driven by limited understanding, perceived lack of evidence, or doubts about the value of alert systems—was identified as a challenge to implementation. Even in regions where alert systems were implemented and adopted, such as Scotland and the US, participants noted the ongoing need for greater staff receptiveness.

While some participants emphasized the importance of staff training—particularly for first responders—and partnerships with external organizations, many cited limited resources and insufficient training on alert systems as challenges. These gaps may be attributed to differences in organizational processes, structures, or culture. Consistent with previous research, participants also highlighted the importance of community support for individuals living with dementia at risk of going missing and their care partners (Adekoya et al., 2021; Neubauer, Daum, et al., 2021). This support should be available before, during, and after a missing incident, ensuring that those affected can access relevant resources.

The implementation process of alert systems varies based on the type of system and its specific context, with some participants emphasizing the need to engage a broader range of stakeholders. For example, Scotland's Purple Alert implementation was led by Alzheimer Scotland in collaboration with various stakeholders, including individuals with lived experience, organizations supporting people living with dementia, and technology developers. In contrast, BC Silver Alert implementation was primarily driven by volunteers and individual citizens, including those with lived experience and search and rescue volunteers. In the US, state-wide Silver Alert implementation differs across states, each guided by national legislation. Despite these differences, participants underscored the importance of involving diverse stakeholders and ensuring that the right individuals are engaged in the implementation process. Additionally, both previous research and in this study, participants commented on a lack of structured feedback mechanisms to assess the progress and quality of alert system implementation (Gier et al., 2017; Yamashita et al., 2013).

7.5.1. Implications for Policy and Practice

This study underscores the need for a comprehensive approach to effectively implement alert systems while addressing contextual factors and related challenges. Sustainability and effectiveness of alert systems require engaging stakeholders through a participatory approach, increasing investment from governmental and non-governmental organizations, and fostering ongoing cross-sector collaboration. Adequate staff training remains a critical component in this process.

There is a need to strengthen policy commitments aimed at reducing dementia-related missing incidents and to expand community-based support for individuals at risk and their care

partners. Public education and staff training— alongside partnerships with community organizations such as Alzheimer societies—can enhance awareness of the risk of going missing and connect individuals with available resources, including alert systems.

Finally, a structured evaluation process integrated with implementation would provide outcomes on impact of alert systems. A stronger evidence base, informed by ongoing evaluation, will support the development of context-specific guidelines, ensuring that alert systems and related policies are effectively incorporated into broader safety strategies for individuals at risk of going missing.

7.5.2. Strengths and Limitations

To our knowledge, this is the first study to examine factors influencing their implementation using the CFIR as a conceptual framework. This research contributes to the existing body of knowledge by providing an in-depth analysis of the implementation process, identifying multi-level contextual factors that influence implementation and adoption of alert systems, and highlighting related barriers. By incorporating perspectives from diverse stakeholders across three countries, the study enhances generalizability beyond a single case study. The use of multiple case studies also enables real-world insights into implementation facilitators and challenges through comprehensive data collection. However, certain limitations should be acknowledged. While CFIR provided a useful framework, it had limitations in capturing the interconnections of the implementation of alert systems. Additionally, the purposive and snowball sampling techniques used in this study may have led to a participant pool that was more likely to support alert systems, potentially skewing findings toward positive perspectives. This recruitment approach may have also resulted in overrepresentation of

individuals with shared interests and greater willingness to participate. Furthermore, most participants identified as White, limiting the study's ability to capture the perspectives of individuals from racialized communities. Future work can engage more participants from diverse backgrounds to capture a wider range of experiences and insights.

7.6. Conclusion

This study examined factors influencing the implementation and use of alert systems for locating missing persons with dementia in Canada, Scotland, and the US using the CFIR. Findings showed how contextual factors—including perceived benefits, evidence, funding, policy, culture, and resources—shape implementation and use of alert systems. A comprehensive approach is essential to effective implementation of alert systems. Sustainability and effectiveness require stakeholder engagement and ongoing investment from governmental and non-governmental organizations. Strengthening policy commitments, expanding community support, and enhancing public education and staff training—through partnerships with organizations like Alzheimer societies—can improve awareness and access to resources. A structured evaluation process integrated with implementation would provide outcomes on the effectiveness of alert systems.

The next chapter provides a general discussion that includes key findings from Studies 1, 2, and 3, integrated findings from this dissertation, implications for policy and practice, directions for future research, and conclusions.

Chapter 8: General Discussion

8.1. Overview

Although there have been national petitions for alert systems in countries such as Canada (Adekoya et al., 2021; Neubauer, Daum, et al., 2021), there remains limited understanding of how these systems and related policies are developed and implemented, particularly regarding the factors that influence their implementation. Implementation research, such as this dissertation, helps to close the gap between knowledge and practice by examining how and why interventions work in real-world settings, facilitating the translation of intentions into effective actions across diverse situations (Peters et al., 2014; Theobald et al., 2018; Wensing & Grol, 2019). Implementation research also identifies barriers to implementation, propose strategies to address these barriers, and evaluate the effectiveness of interventions to enhance health outcomes (Wensing & Grol, 2019).

This dissertation addresses the gap in our understanding of the implementation of alert systems and related policies for locating missing persons with dementia. It consists of three studies, two of which were guided by the Knowledge-to-Action (KTA) Framework (Graham et al., 2006) and Consolidated Framework for Implementation (CFIR) (Damschroder et al., 2009), informing both data collection and analysis. A review of policies, including relevant legislation and procedures pertaining to alert systems, was conducted, along with and interviews with key stakeholders from Canada, Scotland, and the US. Grounded in relativist epistemology and a constructivist lens (Yin, 2018), this research recognizes that multiple stakeholder perspectives represent co-created realities. Instead of presenting universal truths, the findings reflect the

experiences and perspectives of participants, providing a nuanced understanding of the implementation and use of alert systems.

Study 1, described in Chapter 5 of this dissertation, described user experiences with alert systems and policies for missing persons with dementia, drawing on stories and insights from individuals who went missing, their care partners, and those involved in search efforts. Study 2, presented in Chapter 6, focused on understanding the conditions surrounding the implementation and use of alert systems, including potential barriers, by applying the KTA framework to bridge research and practice for effective knowledge translation. Study 3, presented in Chapter 7, explored factors that may arise across various multi-level contexts to influence implementation of alert systems for locating missing persons with dementia, using the CFIR to guide a systematic and comprehensive analysis of these factors.

The following sections of this chapter provide a summary of key findings for each study in this dissertation, integrated findings from this dissertation in relation to existing literature, recommendations for policy, practice, and future research, strengths and limitations, and conclusions.

8.2. Summary of Key Findings

Although the same participant sample was used across the studies, each study generated distinct findings that contributed uniquely to the overall understanding of the topic. The use of multiple frameworks—specifically the KTA framework in Study 2 and the CFIR in Study 3—enhanced the depth and breadth of the analysis by offering complementary perspectives on the complexity of alert system implementation.

Each framework added distinct value. The KTA framework was used in Study 2 for examining the conditions surrounding the implementation and use of alert systems. The framework provided a structured approach to identifying barriers at both the individual and organizational levels to inform future implementation and adoption of alert systems. The KTA's process-oriented focus emphasized how knowledge is applied in real-world contexts and the practical steps necessary to translate knowledge into action.

In contrast, the CFIR in Study 3 provided a comprehensive lens to explore the multi-level contextual factors that shape the implementation of alert systems. The CFIR enabled a detailed analysis of the roles played by individuals, organizations, external environments, and the broader system. It showed how factors such as organizational culture, available resources, external policies, and stakeholder beliefs can directly influence whether alert systems are successfully adopted, implemented, and sustained over time.

By combining both frameworks, this dissertation was able to capture the dynamic interplay between process and context—offering a more holistic and nuanced understanding of the complex realities of implementing alert systems. This multi-framework approach not only enriched the analysis but also provided practical, actionable insights for policy, practice, and research in this area.

In Study 1, user experiences with alert systems for missing persons with dementia were grouped into three key themes: implementing alert systems and policies; experiences of going missing; and factors that help or delay locating missing persons. The first theme on implementation and related policies captured a mix of positive and negative experiences, and what worked and what did not. Successes were attributed to community, organizational, and

political buy-in, early engagement of a small group of people with shared goals, and adequate funding. However, issues related with securing funding, lack of political support, changes in decision-makers, and lack of evaluation to demonstrate the effectiveness of alert systems pose significant challenges.

The second theme centered around the experiences of going missing. Stories shared by participants highlighted the emotional impact of missing incidents. Some individuals successfully returned home using GPS technology or with help from care partners, police, or Good Samaritans; tragically, others were never found, even with alert systems in place. These narratives underscored the complexity of factors related to mitigation strategies including awareness and personal preferences for strategies.

The third theme captured factors that help or delay locating missing persons. The timely reporting of missing persons to police, provision of relevant information, and effective planning and coordination among first responders were crucial in locating missing individuals. Conversely, delays in reporting missing persons and unreliable tips hindered search efforts. The study emphasized the importance of training for first responders and public education to better support individuals at risk of going missing and their care partners.

The three key themes from Study 1 collectively show the complexity of implementing alert systems and the importance of understanding user experiences, including those of individuals with lived, professional, or policy-related involvement in their development, implementation, and use. While many participants viewed alert systems as promising tools for locating missing persons with dementia, some noted that implementation has been hindered by limited political support and a lack of strong evidence on their effectiveness. These findings

suggest a need for further research that centers user experiences to inform the development, implementation, and evaluation of alert systems aimed at reducing the risks and impacts of going missing.

In Study 2, three KTA phases (identifying the problem, assessing barriers to alert system implementation and use, and evaluating outcomes) (Graham et al., 2006) were adapted to explore the conditions surrounding the implementation and use of alert systems for missing persons with dementia. Findings revealed variability in the implementation of alert systems across Canada, Scotland, and the US in the first phase, underscoring the need for clear policies to inform implementation. The study also identified in the next phase barriers to implementation, categorized into individual-level (*limited understanding of alert systems, privacy concerns, alert fatigue*) and organizational/system-level barriers (*sustainability*, *accessibility, privacy legislation*).

At an individual level, participants noted limited public understanding of alert systems, especially regarding criteria and implementation. Awareness and use of alert systems vary among police agencies, with some activating them quickly while others lack experience, leading to inconsistent activation and perceived value. Privacy concerns also emerged as a significant barrier to the implementation and adoption of alert systems, with issues related to data protection, stigma, and potential fraud. Individuals living with dementia and care partners may feel embarrassed about disclosing a dementia diagnosis, further complicating the situation. Alert fatigue, or the overwhelming nature of constant alerts, may deter implementation and use, with some concerns that national alerts could exacerbate this issue.

At a system level, sustainability presents another challenge, as long-term commitment and resources—especially funding—are essential for the implementation and effectiveness of alert systems. Accessibility is critical, with multilingual support and cost considerations being vital factors. Some alert systems, such as Purple Alert, were reported to be designed for simplicity to enhance adoption, while different privacy legislation in another country can delay alert activation. For instance, privacy laws in Canada and the US can delay the process, especially in Canada, where legislation requires police to vet and authorize the release of missing persons' information before it can be shared publicly (Government of Ontario, 2025), whereas in Scotland the community alert system did not need to be vetted and triggered by police.

The final phase, evaluating the outcomes or effectiveness of existing alert systems, remains limited, with no comprehensive assessments of their impact on successfully locating missing persons with dementia. Participants perceived alert systems as beneficial, but the impact of such systems have not been systematically evaluated.

Finally Study 3 findings propose factors that influence the implementation and use of alert systems across five CFIR domains and relevant constructs: *Intervention Characteristics* (relative advantage, evidence strength and quality, cost), *Outer Setting* (end user needs and resources, cosmopolitanism, external policy and incentives), *Inner Setting* (culture, available resources), *Characteristics of Individuals* (knowledge and beliefs about the intervention), and *Implementation Process* (planning, engaging stakeholders, reflecting and evaluating).

Within the *intervention characteristics* domain, key factors included relative advantage, evidence strength and quality, and cost. Participants highlighted the benefits of alert systems, such as increased community awareness and support, and stressed the importance of alert

systems complementing existing strategies such as GPS devices rather than replacing them. They also noted the crucial role of funding from both government and non-governmental sources.

In the *outer setting* domain, factors such as end user needs and resources, cosmopolitanism, and external policies were deemed critical. Alert systems were recognized as important for addressing needs related to missing persons and reducing harm. Collaboration with stakeholders, including people with lived experience, community groups and organizations, was essential, although variations in policy implementation were observed.

For the *inner setting* domain, organizational culture and available resources played significant roles in implementation. While support for alert systems was common, many organizations faced challenges due to sustainable funding, staff training, and time constraints for implementation.

The *characteristics of individuals* domain underscored the importance of knowledge and beliefs about alert systems. Participants generally viewed alert systems positively, particularly in relation to dementia-related incidents, and emphasized community support as a key factor for successful implementation.

Finally, in the *implementation process* domain, planning, engaging users, and reflecting and evaluating were identified as important factors. Participants conducted environmental scans to identify resources and avoid duplication. However, they noted that limited evaluation processes hindered the assessment of alert system effectiveness.

8.3. Integrated Findings

Findings from this dissertation offer insights into the implementation of alert systems and related policies for locating people living with dementia at risk of going missing.

One key finding was how alert systems and related policies are developed and implemented across Canada, Scotland, and the US. The design, operation, and terminology of alert systems differ significantly. For instance, in the US, “Silver Alert” refers to a legislated, statewide broadcasting system that uses changeable highway signs and media outlets to share information about missing persons with dementia (Gergerich & Davis, 2017). In contrast, Canada has no national or province-wide Silver Alert program that is publicly funded. Instead, community-based alert systems, such as BC Silver Alert, rely on community-led efforts and localized notifications via preferred platforms (BC Silver Alert, n.d.) despite a proposed Silver Alert Act introduced in 2014 that did not advance beyond first reading (Legislative Assembly of British Columbia, 2014), possibly because of government’s concern of the public’s association of such legislation with public funding for Silver Alert programs.

Similarly, Scotland’s Purple Alert, a community-based alert system, supported by Alzheimer Scotland, provided localized alerts before being discontinued in 2024 (Alzheimer Scotland, n.d.), due to termination of funding, possibly associated with limited empirical evidence of impact. Consistent with the literature, these differences highlight the influence of political, economic, and social factors on policy implementation and adoption (Mugwagwa et al., 2015), especially in the context of alert systems.

Participants discussed factors that influenced the implementation and use of alert including key barriers. See Table 6 for a summary of the key facilitators and barriers influencing the implementation and use of alert systems, according to the participants.

Table 6. Summary of key facilitators and barriers to implementation and use of alert systems

Facilitators	**Barriers**
Perceived need for alert systems, community, organizational, and political buy-in	Limited understanding of alert systems and a non-receptive organization culture
Multi-agency collaboration (e.g., police, health and social services, researchers, people with lived experience)	Privacy legislation (can delay alert activation)
Legislative frameworks, including national guidance	Lack of legislative support
Funding	Sustainability related to high cost of technology and maintenance
Anecdotal evidence	Lack of strong evidence on alert system effectiveness
Localized, community-based design (e.g., BC Silver Alert)	Concerns about alert fatigue, privacy, and accessibility

Perceptions of community need, a sense of ethical responsibility, and the growing number of missing incidents were some key drivers for implementation. While alert systems are

perceived as a valuable tool, they were viewed as more effective when used in combination with other strategies (e.g., GPS devices) for mitigating risk of going missing. This aligns with literature cautioning against overreliance on technology, which can malfunction, create a false sense of security, or raise ethical concerns such as privacy (Adekoya et al., 2021; Freiesleben et al., 2021; Neubauer et al., 2018; Yoo, 2024).

Effective implementation was associated with early user engagement, legislative and political support, multi-agency collaboration, and sustainable funding. For example, Scotland's Purple Alert initiative, developed and implemented collaboratively by Alzheimer Scotland and different stakeholders, including policymakers and people with lived experience, exemplified a multi-user model—though it was eventually discontinued (Alzheimer Scotland, n.d.), likely due to sustainability and limited evidence. In contrast, Canada's BC Silver Alert, led and funded by volunteers (BC Silver Alert, n.d.), demonstrated grassroots advocacy but had no government support, raising concerns about sustainability.

Consistent with previous studies, cross-sector partnerships—particularly between police, health, and social care sectors—were seen as critical for effective implementation (Adekoya et al., 2021; Neubauer, Daum, et al., 2021). These collaborations enabled cross-training, improved readiness, and enhanced duty-of-care responses by first responders.

Key considerations when developing and implementing technology to support people living with dementia and their care partners include both usability and user support. The technology needs to be user-friendly (simple and easy to use), intelligent (tailored to individual needs), connected (facilitating communication with care networks), effective (functioning reliably for its intended purpose), and ethical (ensuring safety, privacy, and affordability) (Clark

et al., 2023). These considerations align with the findings of this dissertation across the three studies. Ethical and legal concerns, particularly surrounding privacy, emerged as significant barriers. While sharing personal information can aid in search efforts (Adekoya, Daum, Miguel-Cruz, et al., 2025; Gier et al., 2017), participants emphasized the need for public trust and robust data protections. End users, including people living with dementia, must be included in decision-making around data sharing, and systems must be designed to reflect their rights and preferences (Adekoya et al., 2021; Neubauer, Daum, et al., 2021).

Although alert systems are generally considered free to use (e.g., free app downloads), cost-related barriers—such as app subscriptions, mobile device access, and the expenses associated with system development and maintenance—may exacerbate inequities, particularly in lower-income or rural communities (Adekoya, Daum, Neubauer, et al., 2025). Affordability, therefore, is a key ethical consideration in ensuring equitable access to technology (Clark et al., 2023).

The lack of empirical evidence demonstrating alert system effectiveness was another recurring concern. Clark et al. (2023) similarly noted that technologies intended to enhance freedom for people living with dementia have yet to prove effective in real-world settings, limiting their integration into formal dementia care and management. Most support for alert systems remains anecdotal, and this absence of robust data could have contributed to inconsistent adoption and funding. Participants often relied on stories to justify alert systems, underscoring the need for formal evaluations to guide investment and sustainability. This gap may partly explain inconsistent adoption and funding, particularly in Canada and the discontinuation of Scotland's Purple Alert system (Alzheimer Scotland, n.d.) may reflect the absence of clear evidence of return on investment. To address this evidence gap and to support sustainability, the

implementation programs require concurrent impact evaluations. This is particularly relevant as technology platforms continuously evolve.

Alert fatigue occurs when alerts are pushed to devices of citizens who do not choose to receive such alerts. Participants raised concerns that frequent or poorly targeted alerts could lead to public desensitization and reduced responsiveness. This aligns with existing research cautioning that excessive or irrelevant alerts may diminish public engagement over time (Gier et al., 2017), ultimately weakening the system's effectiveness and trust. The design and implementation of alert systems could prevent or mitigate alert fatigues by giving control to users who can opt in or out of receiving such alerts.

The findings also support previous literature on the emotional and financial burden of missing incidents for individuals living with dementia and care partners (Li et al., 2024; Shalev Greene et al., 2019). Many care partners may delay reporting missing persons to police due to stigma or misconceptions, such as believing a 24-hour wait is required. Others fear public exposure or feel shame (Larsson et al., 2025; Shalev Greene et al., 2019). These delays can heighten the risk of harm, reinforcing the need for public education and timely support.

Additionally, awareness of dementia-related missing risks is often limited until an incident occurs (Hu et al., 2024; Li et al., 2024). Early education at the point of diagnosis and access to proactive resources throughout dementia journey are essential to reduce preventable incidents. Technologies such as alert systems may help individuals remain safely in their homes longer and maintain autonomy (Liu et al., 2022), potentially reducing long-term care placement and easing healthcare system strain. However, sustained public education and community

support are vital to ensure families are not left to navigate these challenges in isolation (Adekoya et al., 2021; MacAndrew et al., 2018; Neubauer, Daum, et al., 2021).

In summary, successful alert system implementation requires a coordinated, ethically grounded approach that includes stakeholder collaboration, user-centered design, policy support, and continuous evaluation. The findings reinforce the need for integrated strategies that prioritize both autonomy and safety, respond to contextual challenges, and promote equitable access across communities.

8.4. Implications and Recommendations

This dissertation contributes to our understanding of how alert systems and related policies to locate missing persons with dementia are implemented and used in different settings from participants' perspectives, what's working, what's missing, and why. The findings have significant implications for policy, practice, and future research, offering valuable guidance for policymakers, first responders, service providers, researchers, and the general public. By examining the implementation and use of alert systems across different countries, this work provides actionable recommendations to strengthen alert system development, reduce risks associated with going missing, and potentially enhance the safety and well-being of people living with dementia.

8.4.1. Implications

One key implication is the need for a comprehensive and coordinated approach that includes not just technology, but also the policy and infrastructure that support implementation of alert systems. Effective implementation depends on addressing key contextual challenges—

such as privacy concerns, alert fatigue, and accessibility—and requires a strong policy commitment to addressing dementia-related missing incidents. This commitment also includes expanding community-based support for individuals at risk of going missing and care partners, as well as, fostering cross-sector partnerships.

The success of alert systems also depends on evidence-informed design, strategic planning, and collaborative implementation. A participatory approach that engages various stakeholders, including people with lived experience, is essential for designing and implementing alert systems that are safe, responsive, and enhance safety of missing persons with dementia. Investments in resources, including funding, technology development, training, and public awareness campaigns, are also critical for sustainability.

Expansion of alert system accessibility across platforms and devices might ensure that timely information reaches diverse audiences. A national alert platform with options for local customization by states, provinces, or communities could help balance consistency, privacy protection, and tailored communication strategies. Practical guidance for both first responders and the public needs to be an integrated part of alert protocols to improve community engagement and response.

An embedded structured evaluation from the outset is vital for understanding impact, guiding improvements, and informing future scalability and funding decisions. As prior research has shown, dementia-related missing incidents can cause significant emotional distress for care partners (Li et al., 2024; Shalev Greene et al., 2019). This study adds to that evidence by amplifying the voices of people with lived experience and emphasizing the urgency of proactive safety measures, timely reporting, and coordinated response strategies.

Ultimately, an implementation of alert systems that is inclusive, participatory, and rooted in evaluation would build effective, sustainable alert systems that support those at risk of going missing and engage the public in locating them quickly.

8.4.2. Recommendations for Policy and Practice

8.4.2.1. Evidence-based Implementation Framework for Alert Systems

Based on the findings of this dissertation, an evidence-based implementation framework for alert systems has been developed (see Figure 3), which can be adapted by stakeholders at various levels—local or municipal, provincial, and national. The framework illustrates and emphasizes key contextual factors that must be considered and addressed for effective alert system implementation and the importance of evidence-based practices, interventions, and policies across all levels. At the core of the framework is evidence-based cross-sector collaboration, which involves coordination among governmental and non-governmental organizations that supports older adults, people living with dementia, and their care partners. These stakeholders include, but are not limited to, policymakers, first responders, Alzheimer societies, health care and service providers, technology developers, researchers, and individuals with lived experience. Such collaboration is essential for aligning goals, creating responsive policies, and ensuring the long-term sustainability of alert systems.

Surrounding the core of the framework are layers representing key contextual factors, each of which needs to be supported by evidence. The first outer layer underscores the importance of evidence-based sustainable funding, clear policies, dementia-specific training for relevant professionals, and public education. Sustainable or long-term funding is vital for implementing and maintaining alert systems and addressing sustainability challenges. Clear and

consistent policies are equally important to guide when and how alerts are issued, data collection and sharing, and privacy protection. When these policies are harmonized across jurisdictions, this can reduce confusion and support interoperability.

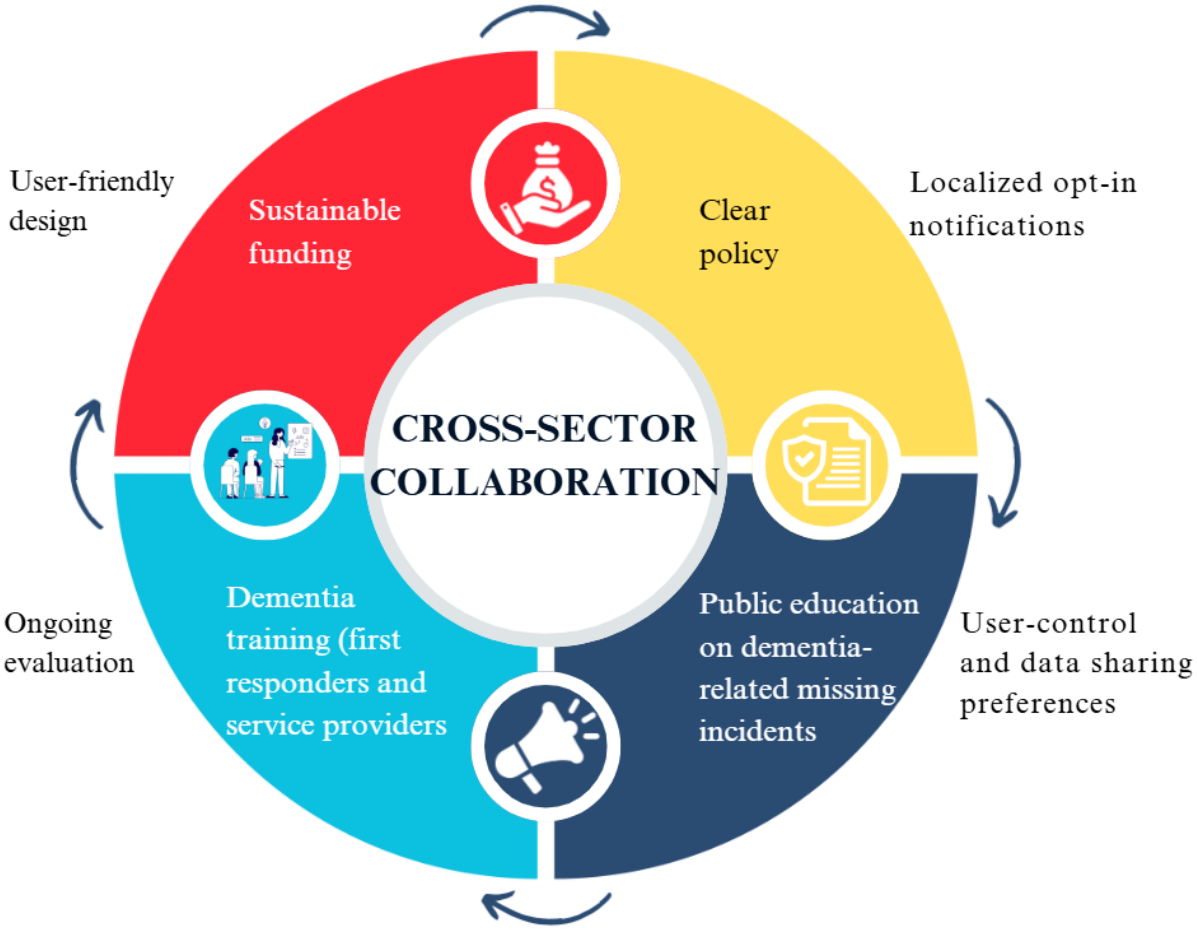

Figure 3. Evidence-based Implementation Framework for Alert Systems

Standardized dementia training for first responders and service providers, including health care professionals across different settings, is also crucial. Dementia training can promote compassionate and informed responses. Training, complemented by actionable recommendations

and targeted dementia education materials, can be integrated into curricula across all levels of education—from primary (elementary) schools to post-secondary educational institutions. This includes universities and colleges offering health professional programs such as nursing, medicine, occupational therapy, and physiotherapy. Such education would equip future healthcare providers with the knowledge and skills to recognize the risks associated with dementia and going missing, respond appropriately, and engage with families and communities in prevention and intervention efforts. It is particularly important to emphasize early conversations about missing incident risks, especially at the time of diagnosis. Integrating these conversations into care planning and admission processes is essential. Such conversations can include proactive safety strategies, the use of alert systems, and referrals to community resources.

Public education campaigns would help raise awareness about dementia-related missing incidents, dispel the misconception about waiting 24 hours before reporting someone missing, the importance of timely reporting, available resources, and practical ways community members can support search efforts and safe returns. Partnerships with Alzheimer societies and similar organizations can play a key role in driving outreach, resource navigation, and community engagement. These organizations could develop tailored resources for the public, people living with dementia, and their families, offering practical guidance on preventive and proactive strategies—such as GPS devices and alert systems—and clear instructions on how to respond effectively if someone goes missing. Together, training and public education would create a multi-level approach that bridges professional education, family preparedness, and public awareness to reduce the risks associated with dementia-related missing incidents.

The final outer layer of the framework focuses on evidence-based alert system design and evaluation. Alert systems need to be user-friendly, offering intuitive interfaces, clear instructions, large fonts, and multilingual support to enhance accessibility. Features such as localized opt-in notifications and customizable data-sharing preferences may help reduce alert fatigue and address privacy concerns. Users can upload personal information securely and have confidence that it will be shared appropriately with authorized parties and deleted once the incident is resolved.

Ongoing evaluation incorporated into the design of alert systems would allow for a continuous assessment of their effectiveness. Building a robust evidence base through continuous monitoring and assessment will also inform context-specific guidelines and help ensure that alert systems are embedded within broader safety strategies.

By acting on these recommendations, stakeholders can support the development and implementation of alert systems that are effective, equitable, and grounded in the lived experiences of those most affected. This framework offers a pathway to improving the implementation of alert systems and enhancing the safety and well-being of people living with dementia and their care partners.

8.4.3. Future Directions

This dissertation shows the necessity of rigorous evaluation of alert systems. Despite growing interest in alert systems, the existing evidence base remains limited and largely anecdotal (Gier et al., 2017; Petonito et al., 2013; Yamashita et al., 2013). This lack of evaluation has likely contributed to hesitancy around the implementation and adoption of alert systems, particularly in Canada. Therefore, future research could prioritize studies that assess the

effectiveness, cost-efficiency, and social impact of alert systems. In addition to measuring outcomes such as recovery times and user satisfaction, there is a need for research that explores the financial sustainability and return on investment of different alert system models. Investigating effective implementation strategies and identifying barriers across various settings, including legal, ethical, and logistical challenges, is also crucial.

Given the rapid pace of technological advancement and the high costs associated with developing and implementing alert systems, future research needs to consider how existing platforms—such as social media networks and community apps—can be adapted to support alert functionality. Leveraging these tools may provide cost-effective alternatives while broadening accessibility. Researchers need to also place greater emphasis on understanding the experiences and needs of end users, including individuals living with dementia, care partners, and community members. Gathering evidence on user experience and satisfaction can help understand if alert systems are inclusive, responsive, and aligned with the expectations of those they are intended to support. Moreover, studies that situate alert systems within the broader ecosystem of safety planning and dementia care, exploring their role in enhancing public awareness, fostering community resilience, would support person-centered care approaches.

8.5. Strengths and Limitations

This dissertation is the first to explore the implementation of alert systems for locating missing persons with dementia across three countries—Canada, Scotland, and the United States. It offers an analysis of how alert systems are developed, implemented, and used, while identifying the multi-level contextual factors that influence implementation. A key strength of this research is its integration of diverse stakeholder perspectives, including individuals living

with dementia, care partners, first responders, policymakers, service providers, and technology developers. These perspectives provide rich, real-world insights into both the implementation challenges and lived experiences associated with dementia-related missing incidents.

Another strength is the study's use of multiple conceptual frameworks—the KTA framework and the CFIR. Together, these frameworks allowed for a more holistic and nuanced analysis of the conditions influencing alert system implementation. While each framework offered unique insights, their combined use helped illuminate both structural and contextual elements that might otherwise be overlooked in a single-framework approach.

The study's multiple case study design further strengthened the credibility and transferability of the findings. By examining cases in three different national and policy contexts, the research offers a broader understanding of implementation processes and barriers, enhancing the relevance of its findings across jurisdictions. Additionally, incorporating users' narratives helped ground the analysis in the social and cultural contexts in which missing incidents occur, adding emotional depth and contextual richness to the findings.

Despite its contributions, this research has some limitations. First, although the combined use of multiple frameworks added value, it also has drawbacks. Neither the KTA framework nor CFIR fully captured the complex interconnections of factors influencing implementation of alert systems, specifically how these factors interact or influence each other across different levels.

Second, this research relied on retrospective accounts, which may be subject to recall bias. Participants were reflecting on past experiences, and in some cases, these events had occurred several years prior, which may limit the accuracy of reported details. Interviewing

participants at different stages of implementation, including earlier phases, might have provided additional insight.

Third, the use of purposive and snowball sampling may have introduced selection bias. Participants who were more familiar with or supportive of alert systems may have been more likely to participate, potentially skewing the findings toward more favorable views. Additionally, snowball sampling may have led to the overrepresentation of individuals with higher research interest, or those already engaged with the topic. Although the sample comprised service providers, including some who are also health care providers from different settings, the study did not specifically recruit health care providers from home care or long-term care. Given that most dementia-related missing incidents occur in community settings, this may have limited the inclusion of valuable perspectives from these care providers. Recruitment that targets these groups could enhance the diversity of future studies.

Finally, while efforts were made to include diverse perspectives, the majority of participants identified as White. This underrepresentation of perspectives of racialized and marginalized communities may have constrained the study's ability to fully explore how cultural values, language barriers, or systemic inequities shape experiences of going missing and access to alert systems.

In summary, this dissertation makes a contribution by examining a complex, under-researched issue across multiple contexts. Its strengths lie in its multi-framework, multi-case design and integration of diverse voices. This area of scholarship would benefit from continuing research that incorporates more inclusive sampling strategies, explore underrepresented perspectives, and examine earlier stages of alert system development.

8.6. Conclusions

This dissertation provides important insights into the development, implementation, and use of alert systems and related policies for locating missing persons with dementia across Canada, Scotland, and the United States. The findings reveal variability in how alert systems are designed and adopted, shaped by policy, contextual factors, and challenges. Key challenges—such as privacy concerns, alert fatigue, accessibility, and sustainability—underscore the complexity of implementation and the need for thoughtful, coordinated approaches. The limited evaluation of alert systems across jurisdictions contributes to limited evidence on effectiveness, highlighting the need for systematic assessment of outcomes.

Beyond technical and policy considerations, the findings draw attention to the emotional toll that dementia-related missing incidents have on individuals, families, and communities. They reinforce the importance of timely reporting, public education, and integrated strategies—such as alert systems—to support safe outcomes. To address these challenges, this dissertation proposes recommendations, including an implementation framework rooted in cross-sector collaboration, user-centered design, and proactive planning. This framework can inform policies and practices aimed at improving safety, enhancing public responsiveness, and supporting the safety, dignity, and well-being of people living with dementia. Ultimately, sustained investment, clear policy, and continuous evaluation are essential to the long-term use of alert systems, particularly when integrated within a broader dementia strategy.

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Appendices

Appendix A. Information Letter and Consent Form – Individual Interview

Study Title: Community Alert Systems for Missing Persons with Dementia: Policy to Implementation

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Background

- Persons living with dementia have a higher chance of getting lost and going missing.
- Community alert systems, such as Canada's BC Silver Alert, Scotland's Purple Alert, and United States' Silver Alert, support first responders in locating missing person with dementia.
- In Canada, provinces are responsible for Silver Alerts. To date, Alberta and Manitoba have amended Missing Persons Acts but have no Silver Alert programs. British Columbia has a citizen-led Silver Alert and Quebec recently launched a Silver Alert pilot project for missing older adults, yet no provincial legislation.
- There is a lack of association between policy and programs for alert systems in Canada.

Purpose

- This research is a part of a larger study (PhD thesis) which aims to examine how policies and programs for alert systems are developed and implemented in Canada, Scotland, and the United States.
- We will first review policy documents before conducting interviews with participants such as people with dementia, care partners, Alzheimer Societies, first responders, service providers, technology developers, and policy makers to identify factors for successful implementation of alert systems.

Study Procedures

This study is in two phases. If you agree to participate, the following will happen:

- Phase 1: You will be invited to take part in an individual interview online using a video call platform (e.g., Zoom) or in person. The interview will take approximately 45 to 60 minutes and be recorded.
- Before the interview, we will email you an interview guide containing demographic questions (e.g., age, sex, gender, ethnicity) and questions about your experience or interest in developing, implementing or using [name of alert system] and what contributes to its successful implementation.
- Phase 2: You will be invited to participate in an online focus group with other participants to further explore your perspective on factors influencing implementation of alert systems and ways to enhance alert systems. We will also ask for your feedback on the findings of the individual interviews we conducted during phase one. The focus group is anticipated to take 60-90 minutes. You will be emailed the information letter, consent form and list of questions before the focus group. Please note that there is no commitment to participate in the focus group.
- The interview will be audio or video recorded. When using an online video call platform, video recording is necessary. If you do not wish to have your video recorded, you can turn off your camera feed during the interview.
- After the session is finished, the audio or video file will be saved to a password-protected storage device encrypted and transcribed. We will remove your identifiable information and delete the file once the analysis is complete.

Benefits

- You will not directly benefit from participating in this study. However, your participation will contribute to our understanding of the association between policy and programs for alert systems. The findings will be used to inform policies and implementation of alert systems in communities to enhance the safety and well-being of persons living with dementia at risk of going missing.

Risk

- There are minimal risks related to the potential for negative emotions to arise (e.g., reflecting on a time you, your relative or a client went missing, or thinking about the possibility that this could occur).
- If you feel psychologically or mentally fatigued, please note that this risk is short-term only. You can also withdraw your participation at any time.
- This study will use the remote videoconference software (Microsoft Teams or Zoom) to collect data, an externally hosted cloud-based service. As we are concerned about our study participants' security, we are committed to using software that guarantees encrypted communication between participants. Links to Microsoft Teams and Zoom software privacy policies are available here: https://docs.microsoft.com/en-us/microsoftteams/security-compliance-overview, https://zoom.us/privacy.

- If you are concerned about this, we would be happy to make alternative arrangements to participate, perhaps via telephone. Please talk to the researcher if you have any concerns.

Voluntary Participation

- Your participation in this study is voluntary. You do not have to answer questions or participate in this study if you feel uncomfortable.
- For persons with dementia and care partners: To compensate you for your time, expenses, and inconvenience in participating in our study, you will receive a $25 gift card after the interview. The amount received is taxable. It is your responsibility to report this amount for income tax purposes.
- You can withdraw your participation at any time, without giving any reason up until [date] by contacting Busola Adekoya at a2adekoy@uwaterloo.ca. We will then destroy any data that we have collected from you. However, after [date] we will not be able to remove your data because it will be anonymized and pooled with all of the data collected in this study. This means that we will not be able to identify and remove your comments.

Confidentiality & Anonymity

- All the information we collect during the course of this study will be kept confidential and there are strict laws which safeguard your privacy at every stage.
- All anonymized data will be kept for a minimum of seven years.
- If the interview is conducted over an online platform (Microsoft Teams or Zoom). Microsoft Teams and Zoom have implemented technical, administrative, and physical safeguards to protect the information provided via the Services from loss, misuse, and unauthorized access, disclosure, alteration, or destruction. However, no internet transmission is ever fully secure or error free.

Findings of this study

- The results of this study will primarily be used for educational purposes.
- We may present the findings at a scientific conference or use them to write a paper for a scientific journal.
- We will not use your name in our presentations or publications. With your permission, anonymous quotations including your role (e.g., person living with dementia) may be used in publications and/or presentations.
- We will also not show any material that we record. We will make every effort to keep your personal information private and identity confidential.
- We will email you the summary of findings of phases 1 and 2 of this study by [date]. If interested, we will also email the results of the larger study, anticipated to be ready in [date].

Has the study received ethics clearance?

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542). If you have questions for the Board, contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or reb@uwaterloo.ca.

Who should I contact if I have questions regarding my participation in the study?

If you have any questions regarding this study or would like additional information to assist you in deciding on participation, please contact Busola Adekoya at a2adekoy@uwaterloo.ca or Dr. Lili Liu at lili.liu@uwaterloo.ca or call 1-519-888-4567 x42126.

Busola Adekoya
Faculty of Health
University of Waterloo
a2adekoy@uwaterloo.ca

Lili Liu
Faculty of Health
University of Waterloo
lili.liu@uwaterloo.ca

Consent Statement

By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

Title of the study: Community Alert Systems for Missing Persons with Dementia: Policy to Implementation

I have read the information presented in the information letter about a study conducted by Busola Adekoya under the supervision of Dr. Lili Liu, Faculty of Health, University of Waterloo. I have had the opportunity to ask questions related to the study. I have received satisfactory answers to my questions and any additional details.

I am aware that my participation in the study is voluntary, and I can withdraw this consent by informing the researcher.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542). If you have questions for the Board, contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or reb@uwaterloo.ca.

For all other questions contact Busola Adekoya at a2adekoy@uwaterloo.ca or Dr. Lili Liu at lili.liu@uwaterloo.ca.

☐ I agree, of my own free will, to participate in this study.

☐ I agree that the interview will be audio recorded only to ensure accurate transcription and analysis. In this case, you will be asked to turn your video off.

☐ I agree that the interview will be audio and video recorded to ensure accurate transcription and analysis.

☐ I provide consent for the use of anonymous quotations in any publication that comes from this research.

☐ Verbal consent was obtained

_____ _____

Name of person providing consent Date

_____ _____

Person obtaining consent Date

Appendix B. Information Letter and Consent Form – Focus Group

Study Title: Community Alert Systems for Missing Persons with Dementia: Policy to Implementation

Research Investigator

Busola Adekoya
Faculty of Health
University of Waterloo
Waterloo, ON, N2L 3G1 Canada
a2adekoy@uwaterloo.ca

Research Principal Investigator

Dr. Lili Liu
Faculty of Health
University of Waterloo
Waterloo, ON, N2L 3G1 Canada
lili.liu@uwaterloo.ca

Funding: Alzheimer Society of Research Program (ASRP)/AGE-WELL

Background

- Persons living with dementia have a higher chance of getting lost and going missing.
- Community alert systems, such as Canada's BC Silver Alert, Scotland's Purple Alert, and United States' Silver Alert, support first responders in locating missing person with dementia.
- In Canada, provinces are responsible for Silver Alerts. To date, Alberta and Manitoba have amended Missing Persons Acts but have no Silver Alert programs. British Columbia has a citizen-led Silver Alert and Quebec recently launched a Silver Alert pilot project for missing older adults, yet no provincial legislation. In Ontario, there are calls for a Silver Alert to be implemented across the province.
- There is a lack of association between policy and programs for alert systems in Canada.

Purpose

- This research is a part of a larger study (PhD thesis) which aims to examine how policies and programs for alert systems are developed and implemented in Canada, Scotland, and the United States.
- As you may recall, in phase one of our study, you were invited to participate in an individual interview and share your experience or interest in developing, implementing or using [insert name of alert system] and what contributes to its successful implementation.
- In phase two of this study, we will conduct focus groups with 5-10 participants, including yourself to further explore your perspective with other participants on the implementation of [insert name of alert system] for missing persons with dementia. We will also get your feedback on our findings of the individual interviews. Other participants may include persons living with dementia, care partners, Alzheimer Societies, first responders, service providers,

technology developers, and policy makers. Please note that there is no commitment to participate in this focus group.

Study Procedures

If you agree to participate in this study, the following will happen:

- You will be invited to take part in an online focus group using video call platform, such as Zoom, and it will take approximately 60-90 minutes in duration and will be recorded. You will be sent a list of questions before the focus group.
- The session will be audio or video recorded. When using an online video call platform, video recording is necessary to audio record. If you do not wish to have your video recorded, you can turn off your camera feed during the interview.
- After the focus group is finished, the audio (or video) file will be saved to a password-protected storage device and encrypted. We will then transcribe the recording word for word. The file will then be deleted once the analysis is complete.

Benefits

- You will not directly benefit from participating in this study. However, your participation will contribute to our understanding of the association between policy and programs for alert systems. The findings will be used to inform policies and implementation of alert systems in communities to enhance the safety and well-being of persons living with dementia at risk of going missing.

Risk

- There are minimal risks related to the potential for negative emotions to arise (e.g., reflecting on a time you, your relative or a client went missing, or thinking about the possibility that this could occur).
- If you feel psychologically or mentally fatigued, please note that this risk is short-term only. You can also withdraw your participation at any time.
- This study will use the remote videoconference software (Microsoft Teams or Zoom) to collect data, an externally hosted cloud-based service. As we are concerned about our study participants' security, we are committed to using software that guarantees encrypted communication between participants. Links to Microsoft Teams and Zoom software privacy policies are available here: https://docs.microsoft.com/en-us/microsoftteams/security-compliance-overview, https://zoom.us/privacy.
- If you are concerned about this, we would be happy to make alternative arrangements to participate, perhaps via telephone. Please talk to the researcher if you have any concerns.

Voluntary Participation

- Your participation in this study is voluntary. You do not have to answer questions or participate in this study if you feel uncomfortable.
- You can withdraw your participation at any time, without giving any reason up until [date] by contacting Busola Adekoya at a2adekoy@uwaterloo.ca. We will then destroy any data that we have collected from you. However, after [date] we will not be able to remove your data because it will be anonymized and pooled with all of the data collected in this study. This means that we will not be able to identify and remove your comments.

Confidentiality & Anonymity

- All the information we collect during the course of this study will be kept confidential and there are strict laws which safeguard your privacy at every stage.
- All anonymized data will be kept for a minimum of seven years.
- If the interview is conducted over an online platform (Microsoft Teams or Zoom). Microsoft Teams and Zoom have implemented technical, administrative, and physical safeguards to protect the information provided via the Services from loss, misuse, and unauthorized access, disclosure, alteration, or destruction. However, no internet transmission is ever fully secure or error free.

Findings of this study

- The results of this study will primarily be used for educational purposes.
- We may present the findings at a scientific conference or use them to write a paper for a scientific journal.
- We will not use your name in our presentations or publications. With your permission, anonymous quotations including your role (e.g., person living with dementia) may be used in publications and/or presentations.
- We will also not show any material that we record. We will make every effort to keep your personal information private and identity confidential.
- We will email you the summary of findings of phases 1 and 2 of this study by [date]. If interested, we will also email the results of the larger study, anticipated to be ready in [date].

Has the study received ethics clearance?

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542). If you have questions for the Board, contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or reb@uwaterloo.ca.

Who should I contact if I have questions regarding my participation in the study?

If you have any questions regarding this study or would like additional information to assist you in deciding on participation, please contact Busola Adekoya at a2adekoy@uwaterloo.ca or Dr. Lili Liu at lili.liu@uwaterloo.ca or call 1-519-888-4567 x42126.

Busola Adekoya
Faculty of Health
University of Waterloo
a2adekoy@uwaterloo.ca

Lili Liu
Faculty of Health
University of Waterloo
lili.liu@uwaterloo.ca

Consent Statement

By providing your consent, you are not waiving your legal rights or releasing the investigator(s) or involved institution(s) from their legal and professional responsibilities.

Title of the study: Community Alert Systems for Missing Persons with Dementia: Policy to Implementation

I have read the information presented in the information letter about a study conducted by Busola Adekoya under the supervision of Dr. Lili Liu, Faculty of Health, University of Waterloo. I have had the opportunity to ask questions related to the study. I have received satisfactory answers to my questions and any additional details.

I am aware that my participation in the study is voluntary, and I can withdraw this consent by informing the researcher.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542). If you have questions for the Board, contact the Office of Research Ethics, at 1-519-888-4567 ext. 36005 or reb@uwaterloo.ca.

For all other questions contact Busola Adekoya at a2adekoy@uwaterloo.ca or Dr. Lili Liu at lili.liu@uwaterloo.ca.

☐ I agree, of my own free will, to participate in this study.

☐ I agree that the interview will be audio recorded only to ensure accurate transcription and analysis. In this case, you will be asked to turn your video off.

☐ I agree that the interview will be audio and video recorded to ensure accurate transcription and analysis.

☐ I provide consent for the use of anonymous quotations in any publication that comes from this research.

☐ Verbal consent was obtained

_____ _____

Name of person providing consent Date

_____ _____

Person obtaining consent Date

Appendix C. Participant Recruitment Email Script

Subject: Volunteers needed for study that examines development of alert systems (REB #44542)

Hello NAME OF PARTICIPANT HERE,

I am a PhD Candidate at the University of Waterloo. I am conducting a study to explore the perspectives of persons living with dementia, care partners, Alzheimer Societies, first responders, service providers, technology developers, and policy makers on the implementation of [name of alert system] under the supervisor of Dr. Lili Liu. As a participant, you will be invited to take part in an individual interview (in person or online). This interview will take approximately 45-60 minutes and will be recorded. Further on in the study, you will be invited to participate in an online focus group to further explore your perspective with other participants on factors influencing successful alert system implementation and ways to enhance alert systems. You will also be asked to provide feedback on the findings of the individual interviews conducted with you and other participants. The focus group is anticipated to take 60-90 minutes and will be recorded.

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542).

For more information about the study, please see the study information letter attached to this email. Once you have reviewed the information letter, if you are interested in participating in the study, please respond to this email, or contact Busola Adekoya at a2adekoy@uwaterloo.ca or 519-888-4567 x32126.

Kind regards,

Busola Adekoya, RN, GNC(C)
PhD Candidate
School of Public Health Sciences
Faculty of Health
University of Waterloo
a2adekoy@uwaterloo.ca

Appendix D. A Call for Participants [Website]

Study Title: Community Alert Systems for Missing Persons with Dementia

What is this study about?

The aim of this study is to examine the development and implementation of community alert systems

What will happen in this study?

Participants will be invited to share their experience in the use of [name of alert system] by participating in a:

- Personal interview (in person or online) of up to 1 hour
- Focus group of up to 1½ hours

Who is eligible to participate in this study?

You are eligible to participate if you:

- Are a person living with dementia, care partner, first responder, Alzheimer Society staff, service provider, technology developer, and policy maker
- Have experience in the use of [name of alert system]

Location

[country]

Recruitment Date

[date]

Contact Information

If you are interested in participating or would like additional information, please contact Busola Adekoya at a2adekoy@uwaterloo.ca or call -519-888-4567 x42126

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542)

Appendix E. Recruitment Poster

PARTICIPANTS NEEDED FOR STUDY ON [NAME OF ALERT SYSTEM]

Purpose of the Study

To examine the process of policy development and implementation of alert systems for locating missing persons with dementia

Who Can Participate?

Anyone with experience or interest in implementing or using [name of alert system] and is a:

- **Person living with dementia**
- **Care partner**
- **Alzheimer Society staff**
- **First responder**
- **Service provider**
- **Technology developer**
- **Policy maker**

What is Involved?

You will be invited to share your experience or interest in implementing or using [name of alert system] by participating in a:
·Personal interview (in person or online) of ~1 hour
·Focus group of ~1½ hours

Duration of Study

[date]

Who to Contact?

To volunteer or get more information, please contact Busola Adekoya at a2adekoy@uwaterloo.ca or call 1-519-888-4567 x42126

This study has been reviewed and received ethics clearance through a University of Waterloo Research Ethics Board (REB #44542)

Appendix F. CFIR-Informed Sample Interview Guide Questions

Intervention Characteristics

1) What is your opinion of Silver Alert/Purple Alert?
   - How important do you think Silver Alert/Purple Alert is and why?

2) What kind of information or evidence are you aware of that shows Silver Alert/Purple Alert has or will have desired outcomes? Anecdotal evidence? Published literature? Policy briefs or reports?
   - How does this evidence affect your perception of the alert system?

3) How does Silver Alert/Purple Alert compare to other programs or strategies for locating missing persons with dementia (e.g., GPS devices)?
   - What benefits or advantages does Silver Alert//Purple Alert have?
   - What disadvantages does Silver Alert/Purple Alert have?

Outer Setting

4) What or who influenced the development or implementation (e.g., individuals or organizations, community needs, policies or regulations, external mandates, etc.)?

5) To what extent is your organization networked with other external or community organizations for older adults/persons with dementia and care partners?
   - What networking do you engage in? Local or national conferences? Trainings?

Inner Setting

6) How does Silver Alert/Purple Alert align with your (or organization's) beliefs, values, and preferences?

7) How have the individuals served by your organization responded to Silver Alert/Purple Alert?
   - What barriers or challenges do you or the people in your community face or might face using Silver Alert/Purple Alert? (culture, beliefs, norms, values, assumptions)

8) What information, resources and supports about Silver Alert/Purple Alert are available to you in your community? (training, education, troubleshooting, online resources, etc.)
   - Who provides the information, including resources and supports?
   - How does this information affect your opinion of Silver Alert//Purple Alert?

9) Have you or has someone you know ever gone missing in your community or organization?
   - What were the processes of finding the missing person? How was the person found?
   - What helped? What didn't help?

Characteristics of Individuals

10) How well do you think Silver Alert/Purple Alert meets the needs of persons living with dementia and their care partners in the community? Provide examples.

Process

11) What role did you or your organization play in the development or implementation of Silver Alert/Purple Alert and related policies?
    - How was the policy or Silver Alert/Purple Alert developed or implemented? How complex was the implementation? (e.g., duration, requiring many steps).
    - What is your opinion of the process, including if piloted and how decisions were made?
    - What were the associated costs? How was it funded?
    - Who else was involved or should have been involved (individuals, groups, organizations)? What were their roles? How often did you meet?
    - Were any incentives or rewards provided to you or your organization?

12) What kind of information or feedback did you collect or receive during and after implementation? From whom and how did you receive this information?

13) What were the challenges or barriers to implementing and using Silver Alert/Purple Alert?