EXPLORATION OF CARE FARMING AND OLDER ADULTS: THE POTENTIAL OF CARE FARMING APPROACHES TO IMPROVE THE HEALTH AND WELL-BEING OF OLDER ADULTS

by

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Dalhousie University is located in Mi'kma'ki, the
Ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

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Abstract

Reason for writing: The therapeutic use of natural spaces and farming environments and the activities that routinely occur in these spaces is known as Care Farming. Observations of Care Farms have highlighted the benefits these programs offer individuals such as increases in physical effort, time outdoors, social interaction as well as improved mood (Ellingsen-Dalskau et al., 2021; Sempik, 2010). Rural areas in Canada populated with farms may have the potential to provide occupation-based Care Farming programs as health and well-being interventions for older adults.

Problem: Decline in the health of older adults has been identified throughout literature; research has brought necessary attention to the health concerns and inequities older adults face with regard to the lack of access to holistic supports for their health and well-being. Care Farming could mitigate these inequities however the potential of this approach in Canada is not known.

Methodology: An occupational science lens was identified by the researchers as a foundation suited for this thesis project and an organizational strengths-based approach was utilized to explore and evaluate the potential for Care Farming as a means to enhancing health and wellbeing of older adults.

Method: A scoping review was conducted to understand the components of Care Farm programs that may address and/or mitigate health concerns related to aging. Following this, the voices of the agriculture community and older adults were obtained through focus groups and interviews to inform directions for piloting an approach to health through Care Farming in Canada.

Results: The scoping review identified components of Care Farming repeatedly reported as having a positive impact on program participants including engaging with nature/green environments; social opportunities and engagement; feeling useful and meaningful; positive impact on mental and physical well-being; and diverse activities.

The evaluation measures of each study varied. However, there were four factors commonly reported by older adults in the studies recognized as central to Care Farming: physical health/fitness; social relations/engagement; psychological well-being/stress levels; and quality of life.

A descriptive qualitative study was conducted and identified three main categories that outline perspectives of older adults and agriculture communities: (1) building the network; (2) embracing person-centred programming; and (3) aligning contexts for Care Farming. The categories outlined the implementation potential and feasibility of Care Farming program for older adults within Nova Scotia.

The information and data reviewed and collected were then used to inform the development of a Care Farm pilot program, evaluation plan, and suggested next steps.

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Chapter 1 : Introduction

Background

In recent years the health and well-being of rural-dwelling older adults has gained attention, specifically in the areas of loneliness after retirement, social isolation, cognitive decline, decreases in physical functioning, and frailty (Hwang et al., 2019; Kotwal et al., 2021; Pereira et al., 2021; Tilvis et al., 2004; Tomás et al., 2018; Wallace, 2012). One study drew particular attention to rural community members expressing concerns with high cost, restrictive eligibility criteria (e.g., needing to have a diagnosis to access a service), and lack of access/long waitlists associated with health care services in rural communities (Oelke et al., 2016). Residing in rural locations often results in limited access to services needed to address health-related issues (Oelke et al., 2016). Implementation of alternative healthcare programs in rural areas, such as Care Farms, could enhance access and services intended to mitigate health concerns experienced by rural-dwelling older adults.

According to the Stats Canada 2011 census, 90% of people in the farming population reported living in rural areas (Statistics Canada, 2011). Utilizing the existing farming infrastructure for alternative healthcare services/programs has the potential to be an effective approach to mitigating current health issues experienced by older adults in rural areas in an efficient and economically friendly way. Further, research exploring the perspectives and opinions of Care Farming held by key stakeholders is needed. Understanding what is known and understood about the proposed alternative healthcare initiative and identifying key aspects contributing to its strengths and limitations is

important for knowledge generation on the topic and essential to further its potential implementation.

Objectives

A qualitative exploratory approach was used in this thesis project to develop an understanding of Care Farming and its potential impact on the health and well-being of older adults. The objectives of this thesis project are as follows: (1) to conduct a scoping review to identify the components of Care Farming that contribute to health benefits and to identify the outcome measures used to evaluate success, (2) to conduct focus groups and interviews with key stakeholders (i.e. older adults and farmers) to outline the perceptions and opinions of those who could be directly impacted by the implementation of Care Farming, and (3) develop a Care Farm pilot intervention plan and identify occupation focused outcome measures for use in a program evaluation based on the info and data gathered, as well as outline key next steps toward development and implementation of Care Farming programs.

Location of the Researcher and Research

Select components of action research have been recognized by the key investigator as well suited to the research project and were drawn upon to form the paradigm underpinning this study. This thesis was conducted through collaboration of the key investigator with organizations, communities, or networks with the intention of engaging those who will be directly impacted by the implementation of Care Farming (Greenwood & Levin, 2007). Influenced by an action research paradigm, the key investigator systematically determined a problem (health concerns and inequities experienced by the older adults - 65 years of age and older), while simultaneously

developing solutions (the possibilities of Care Farming) to solve or mitigate the problem (Bargal, 2008). In reference to Denzin and Lincoln (2011), this paradigm used the perspectives from multiple points of view to generate meaningful social knowledge; it generates knowledge through integration and collaboration of researchers and stakeholders, and focuses on doing research "with" rather than "for" participants (Greenwood & Levin, 2007, 2nd ed., pp. 1-2). For this project, the researchers explored the research question along-side participants by using participants knowledge and perspectives, ensuring the knowledge generated by the study aligned with participants thoughts and perceptions. The key investigator believed the element of action research utilized in this project that prioritized the voices and opinions of populations directly impacted by the research was particularly important and wanted to ensure participants voices were accurately represented in the data.

The researcher's positionality is located within an occupational science lens, seeking to identify meaningful occupations that contribute to health and well-being, specifically occupation as defined by Wilcock (2005) and Rudman's (2010) occupational possibilities. The research is also built on the key investigator's experience as the youngest in a large family complemented by her life experiences associated with agriculture. This has created the researcher's positional thinking that both older adults and people from the agriculture community hold valuable opinions and perspectives that will beneficially contribute to knowledge generation on the topic of access to healthcare, older adults, and Care Farming.

Conducting this study informed by aspects of action research paradigm facilitates the older adult population and key stakeholders (agriculture community) at the centre

point of this study. The key investigator is interested in using Care Farming programs to address health concerns and inequities experiences by the older adult population, specifically in rural Nova Scotia, and has explored the potential and feasibility of Care Farming through the use of a scoping review and environmental scan that aided in developing a pilot guided by of the academic experience of the key investigator and research committee, and the practical experience of participants and stakeholders. This approach prioritizes voices of the populations that would be most impacted by the potential implementation of Care Farming while the researchers account for the vigor and validity of the study (Greenwood & Levin, 2007).

Data Collection Methods

Combining the analysis from a literature review with the data generated from focus groups and interviews was the method used to understand the potential of Care Farming approaches improving the health and well-being of older adults living in rural areas.

Organizational Approach

The details below outline the organizational approach to this thesis project to provide context and explanation for the Organization Approach Diagram (Figure 1.0). The words in italics and the preceding letter act as a key to Figure 1.0.

A. Occupational Science

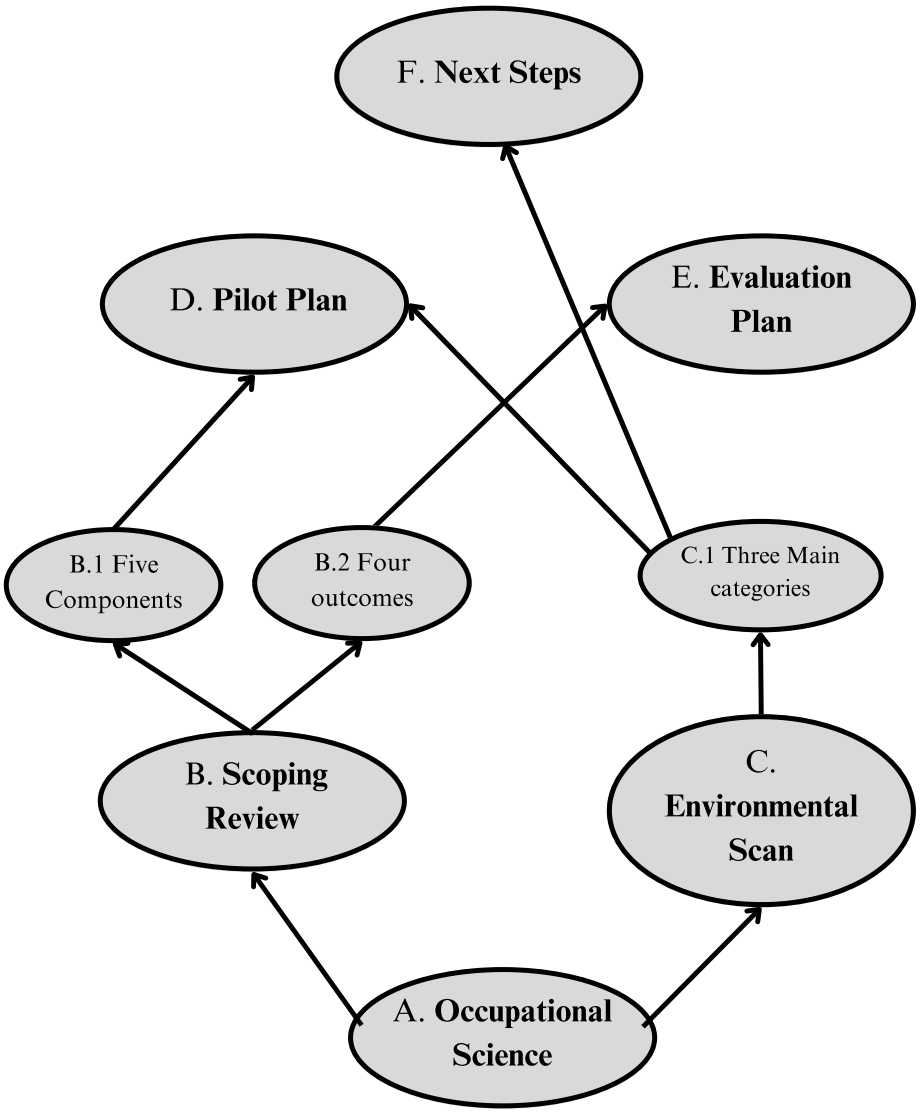
Occupational science underpins this thesis project as occupation (Wilcock, 2005) and occupational possibilities (Rudman, 2010) were the two concepts used to unpack the potential of Care Farming as health promoting and used to guide the future development

of a pilot. Occupation and occupational possibilities are briefly mentioned in Chapter 3 and are elaborated on in Chapter 4.

B. Scoping Review

Components commonly noted in the literature on Care Farming and older adults were identified by way of a scoping review. These components were then analyzed and connected to health promoting aspects supported in existing research. Additionally, the outcome measures of each selected study were assessed to understand what components of Care Farming programs have been used to measure the effectiveness or impact of Care Farming programs, as well as understand the outcomes.

Figure 1.1 Organizational Approach



The *(B.1) five components* of Care Farming uncovered through the scoping review were recognized as integral to Care Farming, positively impacting the health and well-being of Older adults include: (1) engaging with nature/green environments; (2) social opportunities and engagement; (3) activities or factors that promote feeling useful and

meaningful; (4) activities or factors that positively impact mental and physical well-being; (5) and diverse activities.

The *(B.2) four outcomes* commonly reported among Care Farming evaluation outcome measures of the studies in the scoping review and used to measure impact of Care Farming programs include: (1) physical health/fitness; (2) social relations/engagement; (3) psychological well-being/stress levels; (4) and quality of life.

C. Environmental Scan

The environmental scan used a descriptive qualitative approach by way of focus groups and interviews to gather opinions and perspectives about Care Farming from older adults and the agriculture community in Nova Scotia.

The *three main categories (C.1)* defined by the data collected during the Environmental Scan using focus groups and interview transcripts outlines the potential interest in regard to Care Farming approaches to improve the health and well-being of older adults living in rural areas and includes: (1) building the network; (2) embracing person-centered programming; (3) and aligning contexts for Care Farming.

D. Pilot plan

Considerations for a Care Farming pilot plan (See Appendix A) were developed by the key investigator and includes concrete examples of what the pilot could include and is supported by the data from both the scoping review and environmental scan and what is still needed to better inform a robust plan as an initial step to overcome inequities in access to health care.

E. Evaluation Plan

The evaluation plan was developed by identifying and comparing the outcome measures used in the articles selected for the scoping review (See Appendix B).

F. Next Steps

Lastly, next steps are a suggested direction toward successful implementation of Care Farming program formulated based on the information gathered throughout this thesis project.

Chapter 2 : Literature Review

Investigating the literature on Care Farming

Abstract

Aim: A scoping review was conducted to understand and describe the components of Care Farm programs that may address and/or mitigate health concerns related to aging.

Background: A need exists to develop programs and initiatives for older adults that address the health inequities older adults face. One untapped area in Canada may be the use of Care Farming. Care Farming's potential to positively impact those with mental health needs and physical disabilities (Sempik & Aldridge, 2006) and health conditions such as dementia (de Bruin et al., 2015) is evident in the literature. However, little is known about Care Farming in Canada and little is known about how Care Farming impacts health outcomes for older adults.

Methods and Analysis: Arksey and O'Malley's (2005) framework for scoping reviews was followed to conduct this review using five steps: (1) identifying the research question; (2) identifying relevant studies; (3) study selection; (4) charting the data; and (5) collating, summarizing, and reporting the results. Additional resources related to scoping reviews were used to ensure an enhanced review was undertaken in a clear and concise manner in order to support the validity of this review (Khalil et al., 2016; Levac et al., 2010).

Results: Thirty-two studies were identified for full text review and the study selection criteria narrowed the identified studies to N = 8 as relevant for the scoping review. Data charting and extraction was organized to reveal components reported in the literature that impacted the health and well-being of older adults. Data collating and summarizing were

organized and identified five components of Care Farming that were repeatedly noted: engaging with nature/green environment and animals; social opportunities and engagement; feeling useful and meaningful; positive impact on mental and physical well-being; and diverse activities. These components have been reported by participants, farmers, and care givers as having positive impact on participants' mental, physical, and social well-being and may have the potential to be used to address older adults health concerns related to aging. The scoping review also outlined the challenges of Care Farming and the outcome measures used when assessing the impact of Care Farming on older adults.

Conclusion: The articles reviewed highlight some of the key components of Care Farming and outline how they may positively influence the overall health and well-being of program participants. The key investigator proposes an evaluation plan be developed using the outcome measure findings from this scoping review.

Keywords

green care; elderly; seniors; health; health promotion

Introduction

For the purpose of this review, health and well-being is defined based on The Canadian Government website which defines health using the World Health Organization's definition: "a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity" (Government of Canada, 2008). The Government of Canada also stresses the importance of "social well-being" as this is not always considered within definitions of health. Social well-being is an important

component of health as it has an impact on an individual's mental health and affects motivation to engage in occupations (VanKim & Nelson, 2013).

Older adults are respected members of society and many studies have highlighted concerns related to the health and well-being of this valued population. For example, studies have emphasized concerns related to loneliness after retirement, social isolation, cognitive decline, decreases in physical functioning, frailty, and health inequities (Hwang et al., 2019; Kotwal et al., 2021; Pereira et al., 2021; Tilvis et al., 2004; Tomás et al., 2018; Wallace, 2012). These concerns and inequities experienced by older adults, along with the predicted increase in the population of individuals 65 and older (Fowler & Hammer, 2013), warrants the need to explore alternative healthcare initiatives such as Care Farming.

Health and well-being concerns

Older adult loneliness and social isolation has been repeatedly reported in the literature (Hwang et al. 2019; Kotwal et al. 2021). Study participants reported having more time to socialize following retirement yet they expressed having difficulty forming meaningful relationships (Hwang et al., 2019). Loneliness and social isolation of older adults has also been linked to physical and cognitive decline (Hwang et al., 2019). These health-related concerns support the need for more research on community-based programs that aim to positively impact loneliness and social isolation of older persons.

Another commonly identified health concern for older adults is frailty. Although there is no standard definition of frailty, Fried and colleagues (2001) have defined it as a clinical syndrome in which an older adult exhibits at least three of the following symptoms: slow walking speed, self-reported exhaustion, unintentional weight loss, low

physical activity, and weakness. Frailty in old age is associated with higher use of health services (such as medical consultations, home visits, consultations with specialists, and hospitalization) compared to the use of preventative services or services that promote healthy lifestyles (education and strategies that promote health and prevent its deterioration) (Pereira et al., 2021). Given the impact of frailty on the use of services, researchers have begun looking into initiatives and programs to address frailty. Racey and colleagues (2021) investigated the effectiveness of physical activity programs aimed at improving outcomes related to frailty, while Chapman et al. (2003) addressed the feasibility of client-centred, community-based care for frail adults. Both Chapman et al. (2003) and Racey et al. (2021) identified that further investigation on the success of interventions that have the potential to promote health is needed for older adults.

Health inequities of older adults

The health inequities older adults experience include: treatment decisions and recommendations based on age rather than benefit assessment; and older adults are regularly blamed for the rising cost of Medicare, despite the fact that these increases are driven by physician recommendations (Wallace, 2012). Nilsson and Townsend (2010) promote an occupational justice lens, encouraging health professionals to employ a way of thinking about inclusion of populations, such as older adults, who regularly experience exclusion and inequities in their day-to-day life, which impacts their health and well-being.

Older adults have a right to access health promoting programs that address loneliness, social isolation, cognitive and physical decline, and frailty and ensure older persons are able to successfully engage in occupations of everyday life. Programs and

initiatives need to be researched and developed to ensure there are more options and opportunities available to the older adult population. These programs would be underpinned with the intention of providing older adults with the means to retain their ability to live independently at home and out of hospitals or care homes.

Recognized need for alternative health initiatives

Srivarathan and colleagues (2019) focused on community-based health promotion and investigated the encounters between older adults and care professionals. Barriers to accessible and acceptable health promotion services for older adults were identified, which exposed that health services provided to the older population did not meet their health needs (Srivarathan et al., 2019). This study, along with the concerns and inequities in relation to older adult health, showcases the necessity for alternative healthcare services and initiatives developed to meet the health needs of older persons. Occupations have been defined as the broad range of tasks and activities humans engage in in our day-to-day lives that positively or negatively impact overall health and well-being (Wilcock, 2005). The theoretical basis for understanding Care Farming as an alternative healthcare initiative and its potential to align with an occupation-based approach was informed by the work of Wilcock (2005).

Care Farming

The therapeutic use of natural spaces and farming environments and the agriculture activities that routinely occur on a farm is known as Care Farming. These programs are "a growing movement" (Hine et al., 2008, p.246) that provide health and well-being benefits aimed at helping individuals overcome adverse health concerns. As a holistic occupation-based approach, Care Farming has the potential to be an initiative that

supports older adults in ways that occupy their newly found free time, while also incorporating a social aspect to mitigate feelings of loneliness and including adaptable tasks on a farm that require physical engagement (Wilcock, 2007). Investigating the literature and identifying the components (as defined by Cambridge University Press (n.d.) the individual parts that combine to form something larger) that underscore Care Farming program may enhance awareness of program features that can potentially prevent or alleviate common health issues or that may support or add to holistic recovery approaches for conditions experienced by older adults.

Studies on Care Farming have used qualitatively and/or quantitatively methods to evaluate the outcomes following participation in Care Farming programs. However, there has been no one specific outcome evaluation identified or curated specifically to measure the impact Care Farming has on its participants. This scoping review investigated what is currently known about Care Farming approaches to identify the key components that contribute to the impacts of Care Farming in relation to the health of older adults and proposed an evaluation plan that could be used to measure the impact of Care Farming programs.

Methods

The scoping review framework set out by Arksey and O'Malley (2005) was used to uncover what is known about the components of Care Farming programs and to synthesize what is known about the impacts of Care Farming on the health and well-being of older adults and the types of measures used to assess health outcomes. This review follows Arksey and O'Malley's (2005) a reflexive five stage approach, ensuring a compressive and thorough approach was taken when reviewing the literature.

Review Question

What do we know from studies about the components of rural care farming and the impacts on health outcomes for older adults?

Stage 1: Identifying the research question

The first stage involved identifying the research question. This began with the key investigator and the research supervisor ('researchers' when referred to collectively), discussing Care Farming and its potential to be an effective alternative healthcare approach for the aging population in Nova Scotia. The researchers confirmed a minimal amount of research on the topic conducted within Canada and the absence of research specific to Nova Scotia, revealing the need for research on Care Farming in Nova Scotia with particular interest in the components of the programs responsible for positive health outcomes.

Stage 2: Identifying relevant studies

Next, was to identify relevant studies that would assist the researchers in understanding the components that underscore the impact of Care Farming on health reported by participants and those closely associated with Care Farming programs. The key investigator worked with the librarian to ensure a robust and refined search strategy was undertaken and identified key search terms that would ensure the search would capture all articles relevant to the research question.

JBI's three step search strategy was utilized (steps A, B and C below) to compliment *identifying relevant studies* and ensure a thorough scoping review was conducted within the available time and resources. The key investigator met with a librarian to ensure a robust and refined search strategy was undertaken.

The search for articles was conducted between September 2022 and October 2022. (A) “Care Farming”, “older adults”, and “health outcomes” were the initial key terms outlined by the researchers and searched in CINHL using (AND). The use of the term “health outcomes” caused a narrow range of search results and was removed from key terms. (B) Additional terms were identified using indexes across the databases CINHL, PubMed, and PsycInfo (Table 2.1). Those databases were then used to conduct a full review using the terms: [(“care farm*” OR “green care” OR “social farm*”) OR (agriculture* OR horticultur*)] AND [(“older adults” OR aging OR elder* OR seniors OR geriatrics)] (Table 2.2). (C) Following this, the reference lists of selected articles were searched to identify other relevant sources that may have been missed. Due to the relatively new and evolving nature of Care Farming, no limits were placed on publication years.

Table 2.1 Key terms used in data base search

care farm*	older adults
green care	aging
social farm*	elder*
agricultur*	seniors
horticultur*	geriatrics

Table 2.2 Search Strategy

Care Farming		**older adults**	**Date Run**	**# Results**
Keywords [EBSCO operators] - CINAHL Full Text				
"care farm*" OR "green care" OR "social farm*"	agricultur* OR horticultur*		Sept 7, 2022 (searched with OR)	17,393
("care farm*" OR "green care" OR "social farm*") OR (agricultur* OR horticultur*)		"older adults" OR aging OR elder* OR seniors OR geriatrics (306 422 results)	Sept 7, 2022 (searched with AND)	573

PubMed - Title/Abstract				
"care farm*" OR "green care" OR "social farm*"	agricultur* OR horticultur*		Sept 7, 2022 (searched with OR)	118204
("care farm*" OR "green care" OR "social farm*") OR (agricultur* OR horticultur*)		"older adults" OR aging OR elder* OR seniors OR geriatrics (1 060 109 results)	Sept 7, 2022 (searched with AND)	1676
APA PsycInfo [EBSCO operators]				
"care farm*" OR "green care" OR "social farm*"	agricultur* OR horticultur*		2022-09-07 (searched with OR)	19 501
("care farm*" OR "green care" OR "social farm*") OR (agricultur* OR horticultur*)		"older adults" OR aging OR elder* OR seniors OR geriatrics (278 531 results)	2022-09-07 (searched with AND)	900

Inclusion Criteria

Studies included in this review were on the topic of Care Farming initiatives or approaches that occurred in a farming environment whose participants were older adults; aged 65 and older. The review included studies with participants with or without physical or cognitive health related concerns and that offered insight into the components of Care Farming that may effectively address and/or mitigate health concerns related to aging. Studies were conducted in any country but must have been written in the English language.

Exclusion criteria

Research conducted on a farm setting was seen by the researchers as an essential component that contributed to the authentic and casual nature of Care Farm programs, therefore when assessing the articles eligible for full text review studies were excluded if they were conducted in an institutional setting (such as a hospital or a care home) and excluded if they did not offer information related to the components of Care Farming

programs. Studies were also excluded if the 'green care' initiative only involved sitting and mildly interacting with plants or green spaces; the study had to include or involve participants participating in and engaging with the farming environment.

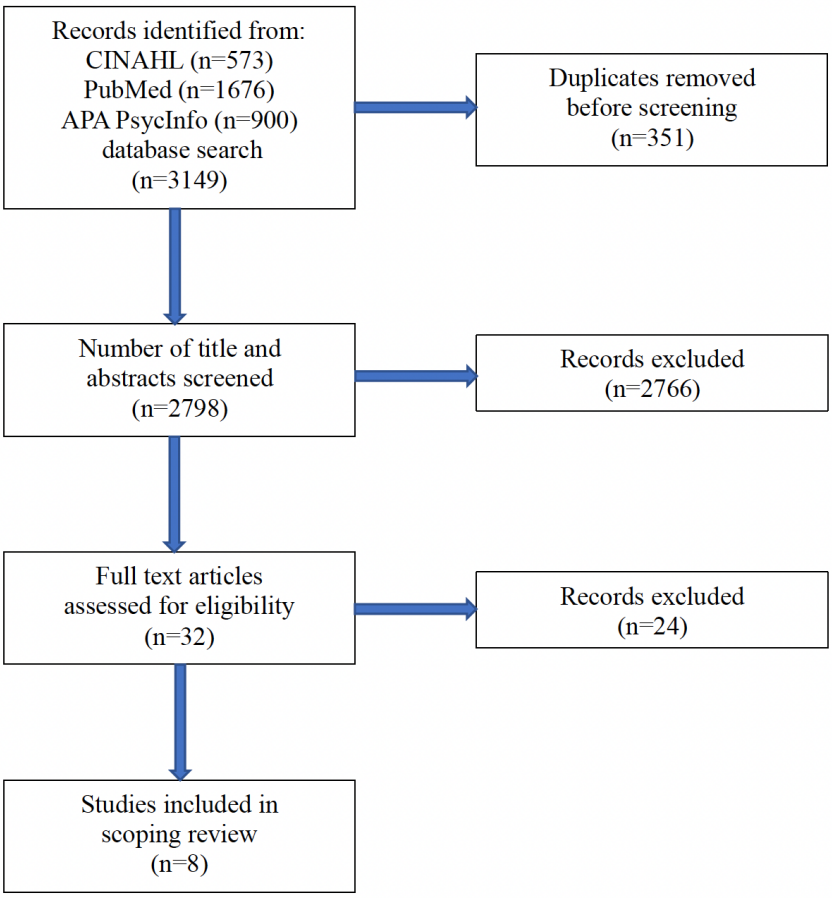
Stage 3: Study selection

The key investigator and the research supervisor worked together to select studies to be included in the review; the reference tool Covidence was used by two of the researchers during this step to sort the articles and identify which would be best suited for the review. The titles and abstracts of articles retrieved from the databases were scanned to eliminate articles unrelated to the review question and remove any duplicates from the results of the search. Using Covidence as a resource ensured any of the discrepancies between the researchers were identified and appropriately addressed such that the final discission to include or exclude an article was unanimous. A PRISMA Flow Chart was created (Page et al., 2021) to outline the screening selection process (Figure 2.1).

Stage 4: Charting the data

Information obtained from each of the selected articles was extracted and charted. This information was summarized in tables to gain a better understanding of the studies chosen to answer the research question pertaining to older adult populations in the context of the study and details about the Care Farming programs in general. Five tables were developed to include general details on each individual article including: article author, year of publication; and country of origin (Table 2.3); study design and method (Table 2.4); study participant information (Table 2.5); definitions of Care Farming (Table 2.6); and benefits, opportunities, challenges, and outcome measures of Care Farming (Table 2.7). A full summary of articles in review can be found in Appendix D.

Figure 2.1 PRISMA Flow chart outlining screening process



Stage 5: Collating, summarizing, and reporting the results

The information outlined in the tables allowed the key investigator to gain an understanding of the extent of research on Care Farming and where is has geographically occurred. The data and information also offered details on the characteristics of the research designs, study populations, the various Care Farming definitions, Care Farming program scopes, and the benefits, opportunities, and challenges of Care Farming reported in the studies. By analyzing the data recorded in tables, the key investigator was able to easily account for the similarities between reports. If a component, or a part of the Care Farming program, was mentioned in three or more studies, it was recognized by the key

investigator as potentially being considered as a factor or indicator that may inform the development of future Care Farming approaches.

Table 2.3 General details on articles in review

Articles Chosen for Review	Author	Year Published	Country of Study
The experience of attending a farm-based day care service from the perspective of people with dementia: A qualitative study	Tanja L. Ibsen Siren Eriksen	2021	Norway
Care farms in the Netherlands: Attractive empowerment-oriented and strengths-based practices in the community	Jan Hassink Marjolein Elings Marjolein Zweekhorst Noor van den Nieuwenhuizen Annet Smit	2010	The Netherlands
A pilot programme evaluation of social farming horticultural and occupational activities for older people in Italy	Cristina Gagliardi Sara Santini Flavia Piccinini Paolo Fabbietti Mirko di Rosa	2018	Italy
Reduced stress and improved physical functional ability in elderly with mental health problems following a horticulture therapy program	Ah-Reum Han Sin-Ae Park Byung-Eun Ahn	2018	South Korea
Can a Green Care Informal Learning Program Foster Active Aging in Older Adults? Results From a Qualitative Pilot Study in Central Italy	Sara Santini Flavia Piccinini Cristina Gagliardi	2020	Italy
Rice-farming care for the elderly people with cognitive impairment in Japan: A case series	Chiaki Ura Tsuyoshi Okamura Sachiko Yamazaki Taichi Ishiguro Masumi Ibe Mayako Miyazaki Yu Kawamuro	2018	Japan

Green Care Farms: An innovative type of adult day service to stimulate social participation of people with dementia	Simone R. de Bruin Annerieke Stoop Claudia C. M. Molema Lenneke Vaandrage Peter J. W. M. Hop Caroline A. Baan	2015	The Netherlands
Farm-based day care in Norway - a complementary service for people with dementia	Tanja L. Ibsen Siren Eriksen Grete G. Patil	2018	Norway

Table 2.4 Study design and method

Author	**Study Design**	**Method**	**In the voice of (participant, farmer, care provider)**
Ibsen & Eriksen (2021)	Qualitative and descriptive design	Individual Interviews	Participant
Hassink et al. (2010)	Qualitative & quantitative	Qualitative interviews, with some quantitative stats	Participant
Gagliardi et al. (2018)	Quantitative	Questionnaires	Participant
Han et al. (2018)	Quantitative	Measurements of cortisol and physical fitness test and a questionnaire	Participant
Santini et al. (2020)	Qualitative	Focus group discussions	Participant
Ura et al. (2018)	Quantitative	Questionnaire	Participant
de Bruin et al. (2015)	Qualitative descriptive study	Semi- structured interviews	Participants and family care givers
Ibsen et al. (2018)	Qualitative description using quantitative analysis	Two cross-sectional surveys	Service providers (farmers that provided their time, space and expertise for a Care Farming program)

Table 2.5 Participant information

Article Author and Year of publication	**Country of origin**	**Number of Participants**	**Ratio (Male/ Female/ Other)**	**Age Range/ Average Age**	**Ailments/ Health Conditions/ General Description**
Ibsen & Eriksen (2021)	Norway	10 participants	6 Male 4 Female	Age range 60-90	Diagnosed with Dementia
Hassink et al. (2010)	The Netherl-ands	41 clients Of which **12** were elderly	9 Male 3 Female	No identified age range - but the words elderly and "old people"	no severe signs of Dementia
Gagliardi et al. (2018)	Italy	(112 at baseline) **73** participated entire length of study	27 Male 46 Female	Age range 64-80 Average age 72	"Older people in good general health"
Han et al. (2018)	South Korea	28 participants. **14** in Horticulture group 14 in control group	1 Male 13 Female	Age Range 77-83 Average age 80	Most participants had depressive disorders
Santini et al. (2020)	Italy	(112 at baseline) **90** participated the entire length of study	32 Male 58 Female	Most participants between 65 and 75	Living in the community or attending in a day care centre
Ura et al. (2018)	Japan	**8** participants	1 Male 7 Female	Age range 62-74 Average age 68	Most participants had cognitive impairments
de Bruin et al. (2015)	The Netherl-ands	**21** Attended services at a green care farm (12 on a Waitlist 17 Attended	18 Male 3 Female	Age range 64-78 Average age 71	Diagnosed with Dementia

		regular day care services)			
Ibsen et al. (2018)	Norway	**227** Participants in 32 FDC (Farm-based Day Care)	Not Reported	Age range 50-96	Diagnosed with Dementia

Table 2.6 Definitions of Care Farming

Article Author and Year of publication	Country of origin	Definition of Care Farming	Scope of Farm in study
Ibsen & Eriksen (2021)	Norway	Farm-based day care service (FDC) uses **activities and resources in the environment at a farm to promote mental and physical health** (p. 1357)	no specifications of farms or scope of farms
Hassink et al. (2010)	The Netherlands	Care farming is a **growing movement that combines agricultural production with health, social, and educational services** (Hassink et al., 2007; Hine et al., 2008, Elings and Hassink, 2008). **Care farming aims to provide health, social or educational benefits through farming activities for a wide range of people** (Hine et al., 2008). (p. 424)	Various farms - noted that participants appreciated the diversity of options and possibilities available at the Care Farm programs
Gagliardi et al. (2018)	Italy	*Care farming, also known as "green care" or "care farms," social farming is a practice that* ***uses the resources offered by farms (e.g., animals, plants, and landscapes) to provide social or educational care services and promote well-being as well as mental and physical health***	Gardening activities like harvesting and pruning; and tending to and caring for animals, craft and food activities, physical exercise sessions, and intergenerational events.

		(Hassink & Van Dijk, 2006; Sempik, Hine, & Wilcox, 2010).	
Han et al. (2018)	South Korea	This program was a horticultural therapy program which development was centred around plant cultivating activities	Plant-cultivating activities
Santini et al. (2020)	Italy	*Green care activities is,* ***the use of nature to produce health, social, or educational benefits, including horticulture, gardening, sowing, pruning, and pet therapy*** *(Sempik & Bragg, 2013; Sempik, Hine, & Wilcox, 2010). (*p. 1241)	Horticulture activities and animal husbandry
Ura et al. (2018)	Japan	Named "green care farms", **this form of care is an empowerment- oriented, strengths-based, and community-based service that aims to improve the quality of life of people with dementia** (Hassink et al., 2010).	Rice Farming
de Bruin et al. (2015)	The Netherlands	*Green care farm* ***combines agricultural activities with care services*** *for a variety of client groups (de Bruin et al., 2009; de Bruin et al., 2010). (p. 2)*	Activities included caring for animals, gardening, and preparing meals
Ibsen et al. (2018)	Norway	*Farm-based day care (FDC) services are described as* ***services that have been adapted from the farm setting, using farm resources to promote health.*** (p. 349)	Activities varied and included tending to and animal-related activities, tending to gardens, preparing meals, and woodworking,

Table 2.7 Benefits, opportunities, challenges, and outcome measures

Author	Benefits	Opportunities	Challenges	Outcome Measures
Ibsen & Eriksen (2021)	-social relations -being occupied and active -individually tailored service/program	Opportunities to: - participate, due to being individual alterations - socialize, engage in work, be outdoors - hold responsibility & contribute - engage in physical activities - supplement regular day care	-Physical Health -Interest -Cognitive Health -Mindset or opinions of what health services should look like	Semi- structured interviews used to draw out the experience, and interactions with other participants and activities to connect to 'salutogenesis' (Antonovsky, 1993, as cited by Ibsen & Erikson, 2021)
Hassink et al. (2010)	-the community on the farm, -the attitude of the farmer, -the non-care context, -the type of work, and -the green environment.	Opportunities to: -remain active -engage with and appreciate nature in authentic farm environment -feel valued -contribute to useful work -engage with community -participate in diverse activities -take care of other living beings (animals)	-The necessity of getting back to work	Semi- structured interviews aimed at assessing feelings of empowerment - leading to improved quality of life (Rodwell, 1996, as cited by Hassink et al., 2010).
Gagliardi et al. (2018)	-growth of social circle -learning from peers -increased activity in day-to-day life	Opportunity to: -increase leisure activities	-complex environment -cognitive and physical ailments could be limiting -ensuring participants are properly supported to continue attending	Minimum Data Set Home Care Assessment (Landi et al., 2000, as cited in Gagliardi et al., 2017),
Han et al. (2018)	-stress reduction -promotes psychophysiological relaxation -improved fitness	Opportunities to: -improve stress and physical abilities	-long term effect unknown	Senior Fitness Test (Rikli & Jones, 1999, as cited in Han et al., 2018)

Santini et al. (2020)	-positive impact on physical well-being -improved mood -improvement in memory -increased sense of usefulness	Opportunities to: -develop new manual competencies -learning new skills	-health issues a barrier to participating	Focus group discussions aimed at investigating mechanisms responsible for impact on Active Aging (AA) determinants (World Health Organization [WHO], 2002, as cited by Santini et al., 2020).
Ura et al. (2018)	-subjective and objective enjoyment -social relations -tangible produce (rice) -postive impact on well-being	Opportunities to: -engage in Japanese culture -encourage community living and social participation	No challenges expressed	WHO-J-5 (Awata et al., 2007, as cited in Ura et al., 2018)
de Bruin et al. (2015)	-induced feelings of usefulness and meaningfulness -participants felt "part of something" -activities were socially relevant -how participants were approached was appreciated -enabled social participation -participants felt a sense of belonging and able to contribute to something	Opportunities for: -Social participation -to meet the preferences and capacities of participants -diverse services	-Not feasible to deliver everywhere -the need for these kinds of services will vary	Semi-structured interviews assessing the operationalizatio n of social participation (Hoeymans et al., 2015, as cited by de Bruin et al., 2015)
Ibsen et al. (2018)	-special context for the day care service -presence of animals or cultivated land offered sensory experiences -activities took place outdoors	Opportunities to -walk in cultural and outdoor landscape -engage with animals -be integrated into ordinary farm life	-interests and abilities may limit the people willing and able to participate -not all are interested in animals	Two cross-sectional surveys collecting information on the Care Farms and what was included in their day care services.

Results

The literature search yielded eight articles for inclusion in this scoping review. The eight studies were conducted in 5 different countries: Norway (2), The Netherlands (2), Italy (2), Japan (1), and South Korea (1). Components of Care Farming recognized through this review as responsible for ensuring positive health outcomes are as follows: nature/green environment and animals; social opportunities and engagement; activities or factors that promote feeling useful and meaningful; activities or factors that positively impact mental and physical well-being; and diverse activities.

Engaging with nature/green environment and animals

Interacting and engaging with green, outdoor spaces occurs naturally on a Farm and has been repeatedly highlighted in literature (de Bruin et al., 2015; Gagliardi et al., 2019; Han et al. 2018; Hassink et al. 2010; Ibsen & Eriksen 2021; Ibsen et al., 2018; Santini et al., 2020). Being outdoors on the farm adds to the care experience; the natural environment offers various opportunities for activity (Ibsen & Eriksen, 2021) and participants appreciate being outdoors and experiencing nature (Hassink et al., 2010). Both farm animals and the beautiful scenery have been noted as important natural aspects of Care Farm programs (Ibsen & Eriksen, 2021). Santini et al. (2020) noted older participants recognized their value through learning new practical and relational competencies by participating in care activities in the natural environment. In a study conducted by Han et al. (2018), horticulture therapy showed reduced stress through decreased cortisol levels following a 10-session Horticulture Therapy program. All of the studies above showcase the positive experience of interacting with nature in a farm setting and show that it is an integral part of Care Farm programs.

Social opportunities and engagement

Sense of community on a farm has been recognized as a valued aspect of Care Farming (Hassink et al., 2010). Relationships between participants during some Care Farm programs have formed and/or deepened during participation and some participants have reported being able to better manage interpersonal skills and feeling more comfortable with other group members (Hassink et al., 2010). One study, comprised of people diagnosed with dementia, reported the most important reasons for participation in a Care Farm program were social interaction and to combat loneliness (de Bruin et al., 2015). Social interaction and building of relationships was also seen in a Care Farm study where participants held arms while walking or sat close together, physically showing their closeness (Ibsen & Eriksen, 2021). Ibsen and Erikson (2021) noted relationships built through Care Farming not only with other participants and Care Farm providers (farmers) but also with the animals. Ibsen and Erikson (2021) also mentioned relationships were reported as one of the most important aspects of the Care Farm program.

Participant's engagement in existing and new activities that present themselves on a Care Farm stimulated social participation (Hassink et al. 2010). A signification increase in contact with friends or relatives has been seen among program participants (Gagliardi et al., 2019) and another study reported their participants "made friends with each other and harvested a total of 60kg of rice" (Ura et al., 2018, p. 436) showing relationships formed while working together on a common task.

Furthering this, Care Farming programs utilize the space of operational farms, instilling the sense of normal life in these programs. Participants in a study conducted by

de Bruin et al. (2015) exemplified this by describing the Care Farm environment as a normal daily life setting and many care givers reported their family member enjoyed being outdoors and physically active, both factors making Care Farming programs more appealing to participants. In another study, the non-care context was frequently mentioned by farmers and health care professionals as conversations at the farm are not focused on client issues but on work and activities (Hassink et al., 2010). Going to the farm was also noted as a 'back-to-basic' approach that was less stigmatizing for participants compared to conventional care services (Hassink et al., 2010). In fact, Hassink et al. (2010) had many farmers and health care professionals express that the care farm environment is dissimilar to conventional care services; rather, it is often compared to normal life. The normal daily life of the farm environment kept some participants with dementia from realizing they were attending a care service (de Bruin et al., 2015). Caregivers have identified rejection to care as one of the most common, troublesome behaviors of people effected by dementia (Gitlin et al., 2010), with rejection to care being defined as a behavior in which a person with dementia resists the assistance of a caregiver. Rejection to care has been identified as a concern in institutional settings and community (Mahoney et al., 1999). Care Farming could act as a bridge to care as unknown participation could potentially circumvent mental or physical distress to both the individual with dementia and the caregiver, allowing the individual with dementia to still receive care that will positively impact their overall well-being.

Activities or factors that promote feeling useful and meaningful

Feeling useful has been reported in various Care Farming studies and has been recognized as a key component of the program by the researchers. Staying engaged in

daily life through participation in previous occupations, household chores, or recreational activities, including gardening at home or at care facility, has been recognized as key in retaining a sense of usefulness for people with young-onset dementia (YOD) (van Vliet et al., 2017). Similarly, Care Farming participants have repeatedly reported feeling useful through their engagement in tasks and activities on a farm (de Bruin et al., 2015; Hassink et al., 2010; Ibsen & Eriksen, 2021; Santini et al., 2020) such as working on the farm, caring for animals, outdoor activities/tasks, and preparing meals (de Bruin et al., 2015). Santini et al. (2020) had participants report an increase in their sense of usefulness through their experience on the Care Farm and Hassink et al. (2010) noted that elderly participants placed importance on making a useful contribution and not being excluded from society. Similarly, Ibsen and Eriksen (2021) found that participants felt respected, useful, and needed due to the work tasks appropriately assigned by providers based the participants abilities.

Similar to the many reports of perceived usefulness, Care Farms programs have also been recognized as opportunities for participants to engage in activities that provide meaning (de Bruin et al., 2015; Ibsen & Eriksen, 2021). Participants have been known to enjoy the feeling of being appreciated, responsible for something, and as if they contributed (de Bruin et al., 2015). The literature has also shown participants liked having something expected of them and had a drive to work on the farm because feeling responsible gave them meaning in life (Ibsen & Eriksen, 2021).

Activities or factors that positively impact mental and physical well-being

Six of eight studies selected for this scoping review noted Care Farm activities to be physical in nature (de Bruin et al., 2015; Gagliardi et al., 2019; Han et al., 2018; Ibsen

& Eriksen, 2021; Santini et al., 2020; Ura et al., 2018). These activities are both related to the farm and not related to the farm. One such activity not related to the farm is walking; this is commonly included as part of the program because farm environments and surroundings offer lots of walking opportunities (Ibsen & Eriksen, 2021). Walking has been recognized as a Care Farm activity that is responsible for participants regaining their independence, and the positive impact these programs have on physical well-being has been attributed to the opportunity to spend time outdoors, immersed in the farm environment physically engaging in tasks and activities (Santini et al., 2020).

Han et al. (2018) compared pre- and post-tests scores of a fitness test to measure the effect of ten sessions of a horticulture programs on the physical abilities of elder participants with mental health problems. Through this comparative study, there was an observed improvement in test scores relating to strength, agility, balance, endurance, and flexibility (Han et al., 2018), drawing another direct link between Care Farming initiatives and their positive influence on physical well-being.

Diverse activities

The broad range of activities has been appreciated by Care Farm participants as they recognized opportunities to engage in a variety of real useful work such as working in the garden, peeling potatoes, or tending to the animals (Hassink et al., 2010). The diverse activities and tasks of Care Farming programs (Gagliardi et al., 2019; Han et al., 2018; Ibsen & Eriksen, 2021; Ibsen et al., 2018; Ura et al., 2018) are a strength that can be utilized to accommodate various abilities and interests. The accommodating nature of Care Farming ensures Care Farming programs are adaptable to a broad range of participants with varying cognitive impairments and disorders (Ura et al., 2018). In some

cases participants individual capacities played a key role in the activities participants took part in, such as raised bed gardening, pruning, craft activities, food education and cooking (Gagliardi et al., 2019). However, diversity of activities can be attributed to the abundance of resources on a farm and providers (farmers) have recognized this as the reason for individually tailored activities within these care programs (Ibsen et al., 2018). Ibsen and Eriksen (2021) have also highlighted the tailoring aspect of Care Farms. Participants in their study reported "being seen for who I am" and "being one who contributes" (p. 1368) and emphasized mastery and self-confidence as they were able to complete delegated tasks. The importance of the diverse and adaptable component(s) of Care Farming was evident in the voices and insights provided by the participants in this study; participants felt as if they were able to contribute using their own strengths.

Challenges

The physical health of participants was recognized as a potential barrier to participation as the accessibility of farming environments and some farming tasks and activities require a certain level of physical engagement (Gagliardi et al., 2019; Ibsen & Eriksen, 2021; Ibsen et al., 2018; Santini et al., 2020). However, the diversity and adaptability of tasks could mitigate this issue. Two other challenges worth noting are (1) interest in Care Farming and (2) acceptance of typical health services (Ibsen & Eriksen, 2021; Ibsen et al., 2018). These are noted by the key investigator as more difficult to address because they both involve changing personal opinions.

Evaluation Plan

The studies included in the literature review encompassed a diverse range of data evaluated with both qualitative and quantitative methods. Of the eight studies included,

four were qualitative (focus groups, interviews, and cross-sectional surveys), three quantitative (questionnaires, fitness ability and cortisol levels to assess well-being, quality of life, and satisfaction with the program) and one used a mixed methods approach (interviews complemented with stats pulled from interview questions) with all of the studies gaining the insight from Care Farming participants and a few studies additionally gathering the perspectives of the service provider (farmer, employee) and/or the care giver (typically a family member). Despite the variety of approaches, there were four commonly reported themes among the evaluation outcomes which included physical health/fitness (Gagliardi et al., 2019; Han et al., 2018; Santini et al., 2020); social relations/engagement (de Bruin et al., 2015; Gagliardi et al., 2019; Ibsen & Eriksen, 2021; Santini et al., 2020); psychological well-being/stress levels (Han et al., 2018; Santini et al., 2020; Ura et al., 2018); and quality of life (Gagliardi et al., 2019; Hassink et al., 2010).

Recognizing that there are four common factors across both qualitative and quantitative studies conducted provides support for the researchers understanding that these factors are central to Care Farming, justifying these four factors as a starting point in the development of an evaluation plan for Care Farming programs. Many participants in the study conducted by Ibsen and Erikson (2021) "defined themselves by playing a role in the activities and having something expected of them at the farm" (p. 1370), they emphasized the enjoyment they experienced through working and their desire to contribute at the farm as it gave them meaning in life. The importance of participation in meaningful occupations has been expressed by Wilcock (2007) whose work focuses on

an occupational perspective that supports that participation in meaningful occupation is health promoting.

Connecting the relationship between meaningful occupations included in Care Farming programs and the program's potential to be health promoting, the researchers are further proposing that an occupation-based evaluation plan be considered for investigating the impact of participation in Care Farm programs. The problem that remains is the fact that each of the four common factors from the studies included in the literature review use different models and evaluation measures, making it difficult (or impossible) to compare measures and there is a lack in the development of a consistent holistic approach to evaluating the effectiveness of a Care Farming program.

To quantitatively assess physical functional ability before and after participation Han and colleagues (2018) used a Senior Fitness Test (Rikli & Jones, 1999, as cited in Han et al., 2018) and Gagliardi et al. (2017) used the Minimum Data Set Home Care Assessment (Landi et al., 2000, as cited in Gagliardi et al., 2017), while Santini et al. (2020) collected qualitative data to identify the mechanisms responsible for impact of the Care Farm program and draw links to Active Aging (AA) determinants (World Health Organization [WHO], 2002, as cited by Santini et al., 2020). One quantitative study (Gagliardi et al., 2017) measured social relations before and after participation in a Care Farm program and evaluated by analyzing the frequency of contact with social networks, differing from the studies collecting data about the first-hand experience of Care Farm participants and connecting these experiences to AA determinants (WHO, 2002, as cited by Santini et al., 2020), the operationalization of social participation (Hoeymans et al., 2015, as cited by de Bruin et al., 2015) and 'salutogenesis' (Antonovsky, 1993, as cited

by Ibsen & Erikson, 2021). Han and colleagues (2018) used quantitative methods to analyze cortisol levels using pre- and post-test evaluations to measure stress levels, and Santini et al. (2020) used patients experiences to evaluate psychosocial well-being as a AA determinants (WHO, 2002, as cited by Santini et al., 2020). The World Health Organization Quality of Life Assessment (WHOQOL-AGE) was used as a quantitative approach to measure quality of life (Gagliardi et al., 2020). Alternatively, a qualitative approach employing semi-structured interviews was conducted to gather information about the potential of Care Farming inducing feelings of empowerment and leading to improved quality of life (Rodwell, 1996, as cited by Hassink et al., 2010).

Looking at the varied quantitative and qualitative evaluative methods used to evaluate reported outcomes of Care Farming programs shows a lack of consistency across the measures and supports the need for development of an outcome measurement tool to be utilized for occupation-based Care Farming programs.

Outcome measurement tools do exist in the realm of occupational assessments, however many are developed to be used by occupational therapists to measure a broad range of outcomes such as the Canadian Occupational Performance Measure which assesses areas of self-care, productivity and leisure (Law et al., 1990). Opposite to being too broad, there are occupation-based measurement tools developed for specific assessments such as mental health (Kearns et al., 2021) or substance abuse (Sargent & Valdes, 2021).

Discussion

The aim of this study was to understand and describe the components of Care Farm programs that may address and/or mitigate health concerns related to aging. There

were five components outlined in the data that have all been recognized as key pieces that contribute to Care Farming's positive impact on health and well-being of older adults.

The natural and green environment of Care Farms and comparison to 'normal life,' is a strength of Care Farming spaces, that is shaped by knowledge and perceptions of what can be expected to occur in these environments. The simple component of engaging with natural and green environments has been linked to better mental health and better self-perceived general health (Triguero-Mas et al., 2015) and plays a large role in the positive impact of this style of care program.

Collaboration of participants working on a common task offers opportunity to build relationships creating a space that encourages socialization and is commonly noted as important aspect of Care Farming in the literature (de Bruin et al. 2015; Gagliardi et al. 2019; Hassink et al. 2010; Ibsen & Eriksen 2021; Ura et al. 2018). The benefits of social engagement were emphasized when Thomas (2012) highlighted the link between social engagement of older adults and better health outcomes, supporting the relevance of social opportunities and engagement on Care Farms.

The construct of perceived usefulness has been consistently examined within the context of Care Farming (de Bruin et al., 2015; Hassink et al., 2010; Ibsen& Eriksen, 2021; Santini et al., 2020), leading the researchers of this project to acknowledge perceived usefulness' pivotal role within the program. Hammell (2004) has emphasized the importance of the meaning and purpose of occupational experiences and noted that chosen occupations contribute to an individual's quality of life. Care Farming initiatives are a prospective program that provides meaning and hence could contribute to quality of life for older adults whose chosen occupations include farming.

It is well understood and reported in the literature that walking and physical activity are good for mental and physical well-being (Hanson & Jones, 2015). Physical engagement occurs naturally through the tasks and activities that occur on a farm, supporting Care Farming's potential to positively impact the health and well-being of participants.

The importance of the diverse and adaptable component(s) of Care Farming was evident in the voices and insights provided by the participants in the various studies included in this review and speaks to the fact that participants feel as if they are able to contribute using their own strengths and warrants the programs to be inclusive of various abilities. Huber and colleagues (2017) suggest well-being is positively influenced by being able to use personal, physical, and psychological strengths. Care Farming's diverse activities offer opportunity to positively impact the health and well-being of participants with a range of strengths and abilities.

Evaluation tool

The actuality of occupation-based assessment tools ranging from a broad spectrum to a narrow focus, points to the necessary development of an evaluation measure that assesses the four outcome factors central to Care Farming programs which promote participation in meaningful occupations that are health promoting. In future, the development of a more holistic tool to assess Care Farms effective and impactful impression on older adults living in rural Nova Scotia and experiencing inequities.

Relevance of the review

Investigating the components of Care Farming that have been commonly reported in the existing literature and connecting the components to health and well-being benefits

outlines the pieces of Care Farming are responsible for the positive impact Care Farming programs can have on the health and well-being of older adult participants. These components could be used as a building block for future Care Farming programs to ensure the programs include the elements that are known to positively impact the health and well-being of older adults.

Alongside the components, recognizing the outcome measures employed in studies about Care Farming frames the elements or impacts study authors want to understand more about. With little research on Care Farming, study authors may hold a belief about the positive impacts Care Farming has on the health and well-being of older adults, but without the literature to support it study authors cannot make those assumptions. Seven of the eight studies included in this review have focused on an outcome measure related to health and well-being showing that there is an understanding that Care Farming has the potential to positively impact health and well-being. However more research using an occupational lens is needed to understand the part occupation plays in the Care Farming and health and well-being equation.

Strengths and Limitations

This scoping review used a framework inspired by Arksey and O'Malley (2005) and a thorough search strategy guided by the Joanna Briggs Institute to ensure a comprehensive and rigorous approach was maintained. The review highlights components regularly documented in the literature on Care Farming with older adults, outlining components and aspects that may contribute to the positive impact Care Farming has on health and well-being of older adults. One identified limitation is the

review only included studies written in the English language. More information, support and insight may have been extracted from studies written in other languages.

Conclusion

Components of Care Farming have been commonly reported as having a positive impact on program participants include: nature/green environment and animals; social opportunities and engagement; activities or factors that promote feeling useful and meaningful; activities or factors that positively impact mental and physical well-being; and diverse activities. These programs offer potential to address the health concerns faced by older persons such as social isolation and loneliness, physical and cognitive decline, and mitigate the inequities of this population by promoting and developing the use of alternative health care approaches. However, the implementation and effectiveness of Care Farming programs with older adult populations within Nova Scotia and its effects on health outcomes of this population lacks significant research, and the researchers suggest further investigation is needed on this topic.

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Chapter 3 : Environmental Scan

Stakeholder's perceptions of Care Farming as an alternative healthcare place and approach

Abstract

Aim: To investigate the potential of Care Farm approaches to improve the health and well-being of older adults living in rural areas that experience health inequities.

Background: Health concerns (frailty and treatment decisions) and inequities (loneliness and social isolation) experienced by the older adult population have been noted in literature; these become larger concerns when considering the predicted increase in the older adult population. One way to address these concerns is through an occupation-based alternative healthcare initiative such as Care Farming. Care Farming is the therapeutic use of natural spaces and farming environments and the agriculture activities that routinely occur on a farm. This study was conducted to understand the potential interest and value of Care Farming and the feasibility of implementation of Care Farming approaches to improve the health and well-being of older adults living in rural areas that experience health inequities.

Methods and Analysis: A descriptive qualitative approach was used to conduct focus groups and interviews with older adults and the agriculture community to gather perspectives and opinions on Care Farming as an alternative healthcare initiative. Categories were outlined from the data using a qualitative content analysis approach. An initial coding scheme for content was developed around a SWOT template that of Strengths, Weaknesses, Opportunities and Threats (Helms & Nixon, 2010) given that Care Farming is offered in a place of work with an organizational structure. The SWOT

codes were then divided into subcategories and then sorted into categories which were grouped based on common characteristics. The categories were used to address the research question.

Results: Three categories were identified from the data: building the network; embracing person-centered programming; and aligning contexts for Care Farming.

Conclusion: The development and implementation of a Care Farming pilot program and evaluation plan are the first steps to demonstrating the feasibility of this concept and impact on health and wellbeing and the scalability of future programs.

Key words: green care; older adults, farmers, inequities

1.0 Introduction and background literature

Loneliness, social isolation and frailty are key issues related to the health and well-being of older populations that have been highlighted by a number of researchers (Fried et al., 2001; Hwang et al., 2019; Kotwal et al., 2021) and the inequities older adults face when accessing healthcare supports and services have also been recognized, such as treatment decisions based on age rather than cost to benefit comparison (Wallace, 2012). These concerns and inequities experienced by older adults, along with the predicted increase in the population of individuals 65 and above in Nova Scotia (National Association of Federal Retirees, 2021), warrants the need to explore alternative healthcare initiatives such as Care Farming.

Health inequities of older adults

Instead of making healthcare treatment decisions solely on the assessment of benefits, healthcare professionals sometimes consider the age of older adults, believing that their lifespan might not justify the investment in healthcare. However, healthcare

products and services prescribed to patients are driven by physician recommendations rather than patient demand, older adults are often accused with the rising cost in healthcare (Wallace, 2012). An occupational justice lens has been promoted to address exclusion and inequities experienced by populations, such as older adults, and encourage health professionals to consider strategies for inclusion to positively impact health and well-being of these populations (Nilsson and Townsend, 2010).

Older adults are entitled to access health promoting programs that address issues related to health and well-being and ensure older persons are able to successfully engage in occupations of everyday life. Programs and initiatives may benefit from using an occupational-justice lens to advance more options and opportunities available to the older adult population that may promote holistic health and well-being. These health programs may be developed with the intention of providing older adults with the means to have options to retain their ability to live independently at home and out of hospitals or care homes.

Recognized need for alternative health initiatives

Community-based health promotion was investigated by Srivarathan and colleagues (2019) who focused on the encounters between older adults and care professionals. This study exposed a lack of accessible and acceptable health services provided to the older population due to older adult health conditions, psychosocial resources, and communication and caused barriers to health promotion initiatives (Srivarathan et al, 2019). The necessity for alternative healthcare services and initiatives developed to meet the health needs of older persons has been showcased by inequitable social and health services for older adults.

Wilcock (2005) defines occupations as the broad range of tasks and activities humans engage in in our day-to-day lives, and recognizes that occupations positively or negatively impact overall health outcomes. Wilcock's (2005) occupational perspective informed the theoretical basis for understanding more about Care Farming and if and how it may align with an occupation-based approach and its potential to be offered as an alternative healthcare avenue. In addition, there is an opportunity to build upon occupational science evidence that explores holistic occupation-based approaches and their potential to mitigate the concerns, inequities, and barriers, in this case specifically relating to older adult health (Wilcock, 2007).

Care Farming is the therapeutic use of natural spaces and places (such as farming environments) and the agriculture activities that routinely occur on a farm. These programs are "a growing movement [that] provide health, social or educational benefits" (Hine et al., 2008, p.246) aimed at helping individuals overcome adverse health concerns. While there are countries and regions that recognize and utilize places that offer approaches to Care Farming (Norway, Sweden, The United Kingdom to list a few), very few regions in North America have reported on Care Farming. For instance, in a review of the literature on Care Farming initiatives and programs with older adults (see Chapter 2) found that there were no studies conducted within Nova Scotia, or Canada, at large on this topic supporting the need for an environmental scan in Nova Scotia.

Agriculture has been recognized as one of Nova Scotia's essential economic industries (Muise, 2023) highlighting the industry's prevalence in the province. The lack of Care Farming studies within Nova Scotia and the predicted increase in the population of individuals 65 and above in the province (National Association of Federal Retirees,

2021), along with conversations with provincial affiliated healthcare outcome teams held prior to engaging in research made it apparent that in order to gain support from society and decision makers for the development and implementation of Care Farming programs there was a need to explore these programs as an alternative healthcare initiative. The aim of this study was to investigate the potential for the feasibility of Care Farm approaches to improve the health and well-being of older adults living in rural areas in Nova Scotia that experience health inequities.

2.0 Methods

The work of Sandelowski on descriptive qualitative methodology was identified as a well-suited approach for this study (Sandelowski, 2000, 2010). For instance, descriptive qualitative studies employ low-inference interpretation or description (Sandelowski, 2000). This low-inference approach refers to the notion that the data generated by participants is very minimally interpreted or altered, such that the analysed data mirrors, or very closely mirrors, the original data set (Sandelowski, 2000) and aligned with the study approach for this project in that the data collected reflects the voices of participants. This approach to qualitative analysis was used to attempt to avoid false interpretation through researcher portrayal. Minimal interpretation of the data allowed for participants accounts to be accurately represented in the data (Sandelowski, 2000). Sandelowski (2000) believes descriptive qualitative studies produce "a complete and valued end-product in itself" (p. 335), aligning with the purpose of the research project to develop a pilot Care Farm intervention in Nova Scotia and an evaluation plan by uncovering the knowledge and perceptions of Care Farming held by older adults and the agriculture community. The study investigated what is known and understood about

Care Farming among older adults and the agriculture community by conducting research centered on the following research question: *What is the potential of Care Farm approaches to improve the health and well-being of older adults living in rural areas that experience health inequities?* Ethical approval was received from Dalhousie University Research and Ethics Board (REB File Number: 2022-6205) to conduct this study.

2.1 Sampling Strategy

Purposeful sampling was used for this qualitative study to gather samples of older adults and the agriculture community to offer insights from key people with knowledge and interest in the concept of Care Farming (Sandelowski, 2000; Patton, 1990). Additionally, snowball sampling occurred as recruited participants were asked to share information about the research project and the contact information of the key investigator with anyone, they may think would be interested in participating (Valentine, 2005).

Maximum variation sampling, a branch of purposeful sampling, was the strategic approach used to identify common categories or themes across varied participants or populations (Patton, 1990). For example, a small number of participants were recruited from both populations and participated in the study consisting of nine older adults and eleven members of the agriculture community (i.e., large- and small-scale farmers, employees of agriculture programs/organizations) who resided and worked in different geographical locations within Nova Scotia (Halifax, Antigonish County, Colchester County, Cumberland County, etc.). This sample and sampling allowed for differences between participants, noted by Patton (1990) as an advantage; any patterns within the data set from the varied population showed the recurrent perceptions associated with Care Farming. This study recruited participants from across Nova Scotia, and purposefully

sampled participants of both genders, from diverse farming backgrounds, and of different ages with the intention of gathering a varied and diverse sample whose supplied data was analyzed for patterns and valuable information was drawn from to answer the research question.

2.2 Participant Characteristics

Participants (older adults, and individuals from the agriculture community) were recruited from rural communities in Nova Scotia. Older adults with interest in exploring alternative approaches to health and people from the agriculture community (farmers, members and executives from agriculture groups, organizations and associations) who are interested in utilizing agriculture environments and tasks as a health intervention were recruited to participate.

2.2.1 Inclusion Criteria

Older Adults - Older adult participants were 65 years of age or above. The age 65 was determined based on a data set developed by Statistics Canada (2021) reporting the average age for retirement of men and women combined was 64.5. As the pilot intervention will be developed with rural populations in mind, one purpose of the study was to explore the perspectives of rural community members by recruiting older adult participants who reside in rural areas in Nova Scotia.

Agriculture community – Recruited participants from the agriculture community were of any age and had a range of affiliations with farms and farming organizations (Nova Scotia Agriculture Federation, Dairy Farmers of Nova Scotia, Nova Scotia Department of Agriculture, etc.) located in a rural area in Nova Scotia.

2.2.2 Exclusion Criteria

To align the study sampling to include older adults and to support the key investigator in conducting the study and analysis, the study excluded adults aged 64 and under from the older adult focus group and excluded any older adults or agriculture community members that were not fluent in the English language.

2.3 Recruitment Methods

A poster describing the study purpose and asking for voluntary participation was distributed to multiple older adult groups and organizations (Seniors Advisory Council of Nova Scotia, Nova Scotia Federation of Seniors, Serving Seniors Alliance Co-operative, etc.) and to community and agricultural organizations (Nova Scotia Agriculture Federation, Dairy Farmers of Nova Scotia, Nova Scotia Department of Agriculture, etc.) via email. The groups and organizations were asked for their support and assistance in distributing the recruitment poster to their members.

2.4 Data Collection

Participants contacted the key investigator through email or phone to express their interest in participating. A total of ten discussions, either focus group or one-on-one interviews, took place with both types of participants. There were eleven participants from the agriculture community and nine participants from the older adult population. A breakdown of the participant details pertaining to age of participants, the location of their farm or residence, and their involvement in agriculture (for the agriculture community) is shown in Table 3.1 and Table 3.2 with participant names replaced with pseudonyms.

Table 3.1 Agriculture community participant information

Pseudonym	Age	Residing Rurally	Agricultural affiliation
Alice	54	Yes	Involved in Agriculture organization or group
Suzie	54	Yes	Produce Farmer
Hector	56	Yes	Produce Farmer

Will	43	Yes	Dairy Farmer
Rita	42	Yes	Dairy Farmer
Roy	36	Yes	Produce Farmer
Kenneth	47	Yes	Mixed produce Market Farmer
Margaret	43	Yes	Mixed produce Market Farmer
Annabell	34	Yes	Involved in Agriculture organization or group
Keith	30	Yes	Garden/Vegetable Market Farmer
Taylor	29	Yes	Garden/Vegetable Market farmer

Table 3.2 Older adult participant information

Pseudonym	**Age**	**Residing Rurally**
Raymond	71	Yes
Thelma	70	Yes
Brent	80	Yes
Gloria	75	Yes
Ernie	88	Yes
Lauren	89	Yes
Chloe	66	No
Dennis	73	No
Ola	69	Yes

Informed written or oral consent was obtained prior to participation in the study and participants were provided with an introduction to, and purpose of, the study. The key investigator also gave information to participants about how the data from the study results were to be used for research (Polit & Beck, 2021).

Focus group (FG) methods were utilized for data collection. FG methods assemble a group of people to discuss a topic of interest and initiate conversational style discussion to gather information and address the research question (Polit & Beck, 2021). For instance, the interview guide (attached, Appendix C) encouraged discussion pertaining participants experiences related to challenges and barriers to accessing healthcare services and programs in rural communities. Prior to the FG discussion the key

investigator gave a brief presentation on Care Farming, and then initiated discussion questions based around participants' understanding and knowledge of Care Farm initiatives.

The focus group interviews were concluded by asking respondents to complete a demographic questionnaire. These demographic questions were used to identify trends or patterns that occur between the knowledge of Care Farming and demographics of participants. Interviews were conducted both in person and virtually, depending on what suited the schedule and availability of the participant(s), and occurred between October 2022 and January 2023.

2.5 Data Analysis

Qualitative content analysis was used in this qualitative descriptive study. This analysis strategy is typically used when there is limited or minimal existing literature on the topic (Hsieh & Shannon, 2005) and aligned with the needs of this study given that there is little known on Care Farming in the Nova Scotia context. The approach to the content analysis drew upon the methods of Helms & Nixon (2010), Hsieh & Shannon (2005), Neergaard et al. (2009), Polit & Beck (2021), and Sandelowski (1986; 2000).

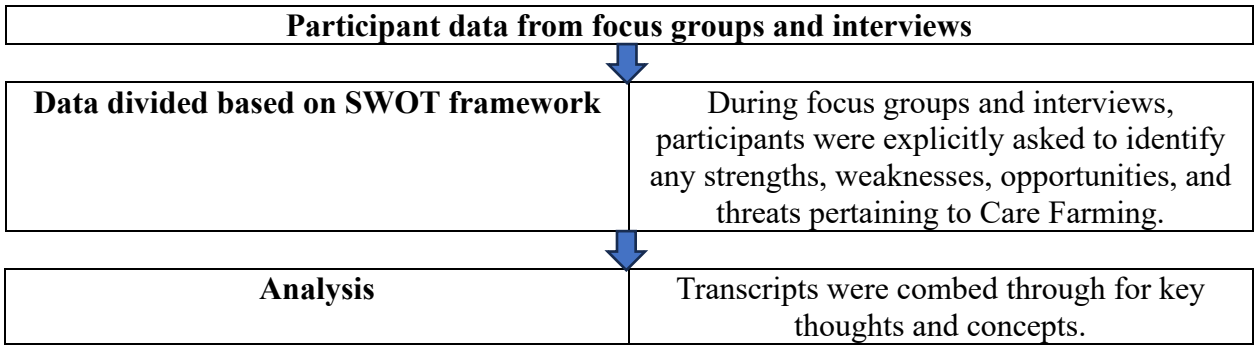
The credibility of the analysis process was achieved through separate analysis of the transcripts by the researchers (the key investigator and research supervisor) to confirm the data pulled from the interviews was relevant and applicable to the research (Sandelowski, 1986).

This project began with the qualitative content analysis process using a SWOT framework, noted by Hiesh and Shannon (2005) as being an adaptable and reflexive coding scheme, to extract key thoughts and concepts from the data. The SWOT

framework was used to initially identify internal strengths and weaknesses and external opportunities and threats, recognizing the favorable and unfavorable aspects of Care Farming (Helms & Nixon, 2010) pulled directly from the interview transcriptions. Being consistent with the qualitative content analysis plan and following the work of Sandelowski (2000), the researchers developed sub-categories as the study progressed based on commonalities of content coded using the SWOT framework across the focus group and interview data. The researchers met virtually on multiple occasions to gain consensus on outlines of the sub-categories to fit the data set (Sandelowski, 2000) and consolidate perspectives from both communities. The sub-categories were divided into three main categories based on similarities and links and defined using common characteristics within each category (Hiesh & Shannon, 2005) (Figure 3.1)

Categories, opposed to themes, were chosen for this study because categories are defined based on the characteristics of the data they contain, whereas a theme defines a meaningful concept that is consistent through its data (Morse, 2008). This descriptive qualitative study kept the data in this project remaining close to participants reports and little interpretation of the data occurred, making categories the suitable data classification strategy. Sub-categories were recognized as relevant and were used to formulate a discussion in response to the research question.

Figure 3.1 Qualitative content analysis of participant data flow chart



Sub-categories	Common thoughts and concepts were then divided into sub-categories based on similarities.
Three overarching categories	The subcategories were separated into three overarching categories, adaptive and reflexive to their content.

3.0 Results

Four focus groups (FG) and seven individual interviews were conducted with participants from each population. The FGs were organized to ensure that individuals from each population participated exclusively within their own group. The FG and interviews were composed of eleven individuals from the agriculture community, between the ages of 36 and 56 and nine older adults all aged 65 and above. All participants were from small population centres (1000 to 29 999 people) and rural areas outside these centres across Nova Scotia, except for two who resided in urban Halifax (Canadian Rural Revitalization Foundation, 2021). Most Nova Scotians would consider all areas outside of Halifax Regional Municipality as rural (Canadian Rural Revitalization Foundation, 2021) which will be the definition of rural for the remain. The data from FGs and interviews was analysed and placed into categories.

There were three main categories that were constructed based on the data collected from interviews and focus groups conducted with older adults and the agriculture community related to the potential and feasibility of Care Farming with older adults in Nova Scotia. The three main categories included data from both populations and encompassed: building the network; embracing person-centered programming; and aligning contexts for Care Farming. Each category contains sub-categories and is

described and supported with individual quotes from both populations, chosen by the key investigator. The categories and subcategories are shown in Table 3.3.

Table 3.3 Categories and subcategories

Category	**Subcategory**
Building the Network	Community Engagement
	Partnering/Stakeholders
	Right People, Right Place
	Employee/Farmer Training and Education
Embracing Person-centered Programming	Alternative Model of Care
	Acceptance of Alternative Model of Care
	Abundance of Opportunities
	Person-centered
	Social Engagement
	Adaptable/Accommodating
	Benefits
Aligning Contexts for Care Farming	Mutual Understanding/Expectations
	Time Commitment/Responsibility of the Farmer
	Operation of Farm/Business
	Compensation
	Barriers

3.1 Building the Network

Content in this category is focused on the importance of developing relationships among the local (or geographic) community as well as the older adult and agriculture communities and is divided into the sub-categories: community engagement; partnering/stakeholders; “right people, right place;” and employee/farmer training and education. The key aspects in building the network are about being inclusive in the process to ensure all those involved are heard and that all parties are able to provide their point-of-view such that all are understood, and mutual trust is built.

3.1.1 Community Engagement

The involvement and engagement of the local community was a component commonly mentioned by older adults and farmers; obtaining the support from the community was seen as important to the success of the program. For instance, a farmer shared,

> *To meet people where they're at …that would be accessing a Care Farm…for their …healing, but also…for the community members maybe around that farm…I'm sure…it all…comes back to…community hubs and in rural places, like [consider] what does it look like to the neighbors of the Care Farm to have that, that new establishment in their town or on their road.*

Developing a program in a community in which program participants live was also recognized as important by a pair of farmers who recognized "their community is the people that they are comfortable with." While one older adult noted that a Care Farming program would lend an opportunity to tie/connect the farm, and its respective farmers, to the community.

3.1.2 Partnering/Stakeholders

The impact and involvement of a variety of industry stakeholders was mentioned within conversations with farmers, highlighting the potential to include partners and stakeholders from various industries and departments within government such as agriculture, health (physical, mental and social), economic development, and community services. For example one farmer summarized this need to be mindful of different and competing issues,*"There's a collision of agriculture and social,…the departments of agriculture and business and all of that and the departments of social and health and wellness, there's a collision happening."* The implementation of Care Farming was seen

by both the older adult and agriculture communities as having the potential to serve as a health promotion program developed to keep participants physically, socially and mentally active and noted as an initiative that could also address food insecurities and labour shortages within local communities, recognizing the opportunity for Care Farms to directly impact the local community. One member from the agriculture community expressed,

> *A care farming environment can provide…wrap around supports of, like, not every care farm has a living, living situation, but a lot do so they have a live in stability. They have like good healthy environments and that can be like spread out to so many things, right? A good healthy environment can mean like good food, physical safety, a roof over your head and it can be spread out even bigger things like just healthy and positive relationships with like your coworkers and co-participants.*

3.1.3 Right People, Right Place

Conversations emphasized developing and implementing programs that ensured people and partners involved are interested and invested. One farmer expressed,

> *You have to be the right person, right? Like, I picture people who, let's say, I decided I'm so done with [my job] and I wanna stay home. And so that would add a little bit of revenue for me to do that. Right…And so I think it really comes down to people like who is, who are the right people to do that.*

The agriculture community recognized the importance of the willingness, commitment, and ability of farmers to accommodate the program/initiative with appropriate or adaptable spaces aligned with the health promoting model. One individual from the older

adult population noted that recruiting farmers and potential employers for Care Farming initiatives would be difficult due to the dual responsibility of caring for/supervising program participants while also holding responsibility to complete farming tasks and chores.

3.1.4 Employee/Farmer Training and Education

Training and education for farmers and employees of Care Farms was seen by both populations as important to provide wrap around supports, ensuring the appropriate skill set and knowledge were communicated to farmers and employees such that they are prepared and able to manage any health-related or agriculture-related situation that may arise while participants are on the farm. As expressed by one farmer,

> *It's really important that those employees have some type of training or…education around the value in [Care Farming] so it doesn't cause [any] type of conflict. And depending on the population that you're looking at, I think also ensuring that the wrap around supports are available…to ensure that the employer is provided with the supports they need to effectively support that person.*

3.2 Embracing Person-centered Programming

The content in this category is focused on significant aspects of the development of the program with emphasis on an alternative model of healthcare, that centres on consideration and prioritization of the needs of people such as older adults, and the opportunities the program can provide for participation in farming related and social activities. It includes seven subcategories: alternative model of care; acceptance of

alternative models of care; abundance of opportunities; person-centered; social engagement; adaptable and accommodating; and benefits.

3.2.1 Alternative Model of Care

Rather than seeking care in a traditional healthcare setting (hospital or clinic), Care Farming was seen by both populations as an alternative model of care. As expressed by one farmer, Care Farming offers an opportunity to provide care in a casual setting, where the focus isn't solely on the healthcare intervention or treatment but instead the focus is to participate in activities in an environment that positively impact the participant and removes the stigma that exists around seeking care,

> *Yeah, I think it takes kind of the fear of…a clinical setting of healthcare away, and it allows people to feel joy in helping them heal…I think you know sometimes going to clinics, hospitals or private practices can be like really intimidating and it's stigmatizing. So if you're going to work on a farm as a way to help yourself heal, I think it removes a lot of stigma.*

3.2.2 Acceptance of Alternative Model of Care

The older adult population noted barriers to adding additional services to the current accepted medical approach to healthcare within society, "Deal with threats. It's the healthcare system… And there are so many barriers to doing anything that's new or interesting." While a farmer recognized that many people view a visit to a doctor or hospital as the only place to seek healthcare and health related services,

> *We often think that maybe a doctor's the only place to go [for care] or like [specialist] or whatever it may be. So, I think that we have work to do in educating into what types of supports and services do exist.*

Bringing awareness to alternative healthcare initiatives and recognizing the potential of alternative services was mentioned by both populations as important for social momentum and societal acceptance of Care Farming as stated by one farmer, “societal momentum, just like people are skeptical of new programs in communities, especially rural communities often. Yeah, breaking people out of shells.”

3.2.3 Abundance of Opportunities

Both populations expressed their belief that Care Farming offered “endless” opportunities and the data from interviews and focus groups contributed to some of the variety of activities and tasks that could be included in the programming allowing Care Farming to meet a diverse range of ages and interests, accommodate various abilities and address a multitude of health-related concerns (physical, mental, social). For instance, this included implementation with incarcerated populations, youth, unemployed, and veterans and could engage people in physical hands-on tasks (collecting eggs, feeding calves, and fixing fences) and build relationships.

Further to this, an individual from the agriculture community expressed the potential opportunities Care Farming offers to address societal concerns around food security,

> *I think care farming, urban or rural but typically rural [is] an extremely good vehicle for change. And like under their catchment foundational space for any type of social change and that can be like the broader one around like just providing food and more food security.*

3.2.4 Person-centered

Consistent throughout the conversations and discussions with older adult and agriculture communities was the emphasis of Care Farming programs being developed and implemented as person-centred. Many interviewees and focus group members expressed that priority is to be placed on the care of participants, and one older adult participant stated that quite literally, *"*The priority is the people, not farm."

Another older adult, provided an example during our interview based on the World Juniors Hockey tournament that took place in December 2022 and placed emphasis on participant interest,

> *[My partner] and I watched the final period of the Junior Hockey Finals as Canada won the gold medal and John Johnson, Montreal. He put it this way. It is not about age. It's about interest. If you went to the forum in Montreal and you looked at the people who were there, you would see people in their 70s, 80s, 60s, 50s, 30s and kids. Why are they there? Because they love hockey. It's the love of hockey that drives it. It's not the age.*

The interest of participants was noted as important for participation and in this case an interest in farming could encourage participation. Developing a care program that puts participants interest at the center could be a strategic approach to encourage enrollment in a care initiative.

3.2.5 Social Engagement

Not only was working together on a farm chore towards a common goal noted by older adults as being enjoyable, but one older adult reported farming environments to be naturally social spaces, where fellow-farmers, neighbours, family, and friends will stop in for a quick visit,

It is a very social place. My dad right up until his final years…had such a huge social life…He became sort of the Patriarch of the community…And because …it's a farming community and so that is exactly what they do…They just stop in say hi, share a little bit of news. The visits never very long…just right in the kitchen…and so I would say that there's huge benefits and huge opportunity.

The social aspect of Care Farming and it being a place for connection was also acknowledged by members from the agriculture community as having the potential to mitigate boredom and/or loneliness in older adults.

3.2.6 Adaptable/Accommodating

The data emphasized a farm's flexibility, as participants in the focus groups and interviews from both populations acknowledged how farming environments can easily adapt and accommodate different needs and abilities. Individuals with diverse abilities can actively participate in the farm setting, experiencing outcomes that impose feelings of meaning and purpose, similar to those on a conventional operational farm. One farmer referenced a few of the ways the farming community has the potential to meet some basic human needs,

I think for all levels of care need…the most severe folks can also benefit from that setting, right? Even people who are totally disabled can also benefit from the therapeutic setting and that like the intangibles of like good community, healthy food, safety, all those things up to the people who like just wanna come for a nice walk on the farm.

3.2.7 Benefits

Participating and actively working within a farm setting presents opportunities to experience a wide array of benefits (such as mental, physical, and social) through the various tasks and activities that can be undertaken on the farm. Older adults and the agriculture community both recognized this as occurring naturally within a farm environment. An older adult articulated this in her interview,

> *Being in that type of non-stress environment is good for your mental health. Being outdoors is healthy for anybody, and being around the animals is healthy for anybody. It's a well-established fact walking on the ground and putting your hand in the dirt and Earth is grounding and good for you.*

3.3 Aligning Contexts for Care Farming

Given the involvement of various stakeholders (local community, agriculture, and older adults) the content in this category focuses on aligning the expectations of all involved (local community, agriculture, and older adults). This category contains aspects that need to be considered in the development of the program to avoid any imbalances or inequities in regard to commitment of participants and the agriculture community as well as to ensure the program positively impacts the local community, agricultural partners and older adults and indirectly impacts the healthcare system. There are five subcategories that captured key aspects, mutual understanding/expectations; time commitment/responsibility of the farmer; operation of farm/business; compensation; and barriers.

3.3.1 Mutual Understanding/Expectations

The importance of mutual understanding associated with Care Farming frequently emerged during conversations with both populations. Given the numerous factors at play

on a farm, it was emphasized that establishing a clear outline of expectations between the farmer and any participant in Care Farming programs is crucial to ensure a mutual understanding of commitment and responsibilities expected from each party. One farmer emphasized this,

> *I think aligning the supports on like the employer, the workplace and the individual participating would be really important, right? Because if not, I think …there could be a potential disconnect there and it's…an investment for their farm to…train the new employee and do all that work. So, depending on what are they contributing to the farm like…it might not be an equilibrium between the two.*

Matching participants to farms based on the needs and expectations of the farmer and the interests and abilities of the participant was suggested a number of times, as a way to ensure expectations on both sides were aligned. One farmer suggested,

> *If this program got up and running, you could have some sort…website where…certain people based on their geographic location and…their skills…try to match…their physical ability level with the farm. So maybe someone who's not as physically able goes to maybe a smaller hobby farm where you know what these people it might be a little simpler.*

3.3.2 Time Commitment/Responsibility of the Farmer

Concerns relating to time commitment and responsibility were expressed during conversations with farmers. One farmer acknowledged the fact that many farmers already have busy and demanding schedules (on and off their farms) and may not want to commit to additional responsibility of a Care Farming program without having additional supports in place.

Yeah. So, and it would also, that's also gonna depend on your farm set up too, right? Like, yeah. And how, um, if you're on farm all day, but if you're only on farm after work hours, right? Then you're condensing all these jobs that you need to get done into a short window. Right. And then to have somebody else coming in and you'd almost have to have somebody that would be dedicated to helping.

An older adult echoed this by recognizing that a farmer may be able to get chores completed more efficiently on their own, rather than with the assistance of someone who was new to the farm and agriculture, "maybe the farmer can do it faster himself instead of supervising these other people."

3.3.3 Operation of Farm/Business

A number of farmers communicated that many functioning farms operate as a business, and the productivity of a farm is a priority. They recognized that incorporating or implementing a Care Farming program would be difficult and would be an additional responsibility. One farmer shared *"I think it's a great idea. I think the difficulty is trying to incorporate it in an actual farm."*

3.3.4 Compensation

When asked about what would be needed to support the development of Care Farming in Nova Scotia, compensation for time and work was commonly mentioned in conversation with both older adults and farmers. One older adult also recognized the potential economic opportunity that exists within the model, "It's gonna be great for the seniors, but it's also great for the economy and many of the seniors cannot live on the pensions that they have. They do need the work." Other older adults shared the belief that Care Farming could be developed to provide payment to older adults participating as a

form of compensation for their time and contribution to the farm, which would be especially beneficial for those that cannot afford to live on an old age pension.

These programs would require resources of agricultural partners and stakeholders, who would have to contribute valuable time, effort, and space to these programs, and the importance in compensating their contribution was noted by one farmer,

> *"We need all of this on the back of the farmer who needs to make money and 'we want to make money, but yet, no, we don't wanna make money because we need him to give to the community.' And this is going on in this big circle all of the time*.

This quote outlines the expectation of the farmer to fill a social responsibility through giving their spare time and offering their space (farm/barn) to society without the expectation of receiving anything in return. Social responsibility atop the time and financial commitment that accompanies an agricultural business has in the past caused tension and stress for farmers. The above quote references this and reiterates the importance of compensating stakeholders through, for example, financial payment and/or tax breaks.

3.3.5 Barriers

A number of barriers were identified through the interviews and focus groups with both populations, a few that were linked to other subcategories previously mentioned such as human resources (finding the right people) and altering what people currently envision when they think of care. One farmer noted that barriers would arise as the program was rolled "And some of the restrictions you may not even really know until you kind of get into it, right?…I think insurance would be a huge one." Also among the

barriers commonly reported by both groups were the following: transportation to and from the farm, and the typical risks and dangers that naturally occur on a farm.

4.0 Discussion

The potential of Care Farming approaches for improving the health and well-being of older adults living in rural areas that experience health inequities was investigated through interviews and focus groups conducted with older adult and agriculture communities. The perspectives of the two populations were recognized by the researchers as being integral to implementation and therefore obtaining their perspectives was seen as an essential initial step in research. Gaining an understanding of the thoughts and perceptions held by two groups connected to and impacted by Care Farming programs with older adults was deemed important as their support (or lack of) would directly influence the acceptance and feasibility of piloting a program.

Discussions with older adults and farmers were used to gather valuable insight into the feasibility of improving the health and well-being of older adults, the categories and subcategories outlined in this study were used to draw implications relative to the research question.

4.1 Implications for a pilot and what is needed to develop a pilot program

Building the network was expressed throughout the interviews and focus groups, noting the importance of working with people and groups that could be involved and/or impacted. Developing relationships within local community, partnering and working with stakeholders, and finding the right people and the right place were three key aspects understood to be integral in the development, implementation and sustainable operation of Care Farming initiatives as well as ensuring the Care Farming programs are effective

in improving the health and well-being of older adults experiencing health inequities. Part of this is ensuring farmers and employees are educated and trained to assist participants when faced with a care related incidence.

De Boer and colleagues (2013) define person-centered care as "being listened to attentively, being able to ask questions, being taken seriously, receiving understandable explanations, and shared decision making," which has been reported as important to various demographic and patient groups (De Boer et al., 2013) aligning with the person-centered essence of Care Farming outlined through the data, providing insight into Care Farming as an alternative model of care, and underscoring the abundance of opportunities within Care Farming that offer a holistic approach to health. Bringing attention to, and understanding of, Care Farming as an avenue to care would be needed to alter peoples' perceptions of healthcare from traditional places of care (hospitals, clinics) to occupation-based alternatives (Care Farming). The non-traditional approach to care and the aptitude of Care Farm programs to be person-centered are assets that could exploit the adaptable and accommodating nature of tasks and activities of Care Farming. This aspect welcomes older adults of all abilities to participate and contribute to the operation of the farm, aligning with the thoughts of Freedman and colleagues (2017) who recognized accommodating individuals experiencing declines in capacity may promote participation and well-being in older adults.

Working together and being social while participating was repeatedly mentioned by both populations as an integral component that exists naturally in a farming environment, and it known for its positive influence on the health of older adults as strong social networks have the potential to protect against mortality (Giles et al., 2005).

Other benefits were associated with outdoor activities and being physically active. Being outdoors, physically active, and social engaged are all things recognized by Sugiyama and Thompson (2007) as responsible in some capacity for physical and psychological benefits. Further, the person-centered quintessence of Care Farming initiates mental, physical, and social benefits for the participants involved in the programming.

Aligning the contexts for Care Farming was seen as essential for all parties (participants, farmers, other stakeholders) and important for understanding and aligning expectations, such that those involved are aware of the commitment required. Farmers are known to hold significant responsibility, leading to busy days tending to their operational chores, and time being of high value. Most farms operate as a business, with productivity being a priority. It is also worth noting that both populations included in this study mentioned compensation for farmers and participants was an important way to value the time and effort contributed to the program. Therefore, aligning and understanding expectations, commitment, and responsibility associated with partaking in a Care Farming program is seen as important to consider during planning and implementing. To make certain all those involved clearly understand what Care Farming is comprised of; the expectations of the program need to be clearly outlined and communicated.

4.2 Occupation-based approach

Wilcock (2005) defines occupations as the range of tasks and activities humans engage in in our day-to-day lives that positively or negatively impact overall health. Recognizing the varied tasks and activities that are afforded on a farm, Care Farming was identified by the key investigator and research supervisor as an occupation-based approach that has potential to offer an alternative healthcare initiative for older adults

experiencing health inequities. There are a number of components of Care Farming (nature/green environment and animals; social opportunities and engagement; activities or factors that promote feeling useful and meaningful; activities or factors that positively impact mental and physical well-being; and diverse activities) outlined in a literature review conducted by the key investigator (Chapter 2) that have been recognized as having a positive impact the health and/or well-being of older adult participants, highlighting the potential for Care Farming to be used as a holistic initiative that could address health concerns experienced by older adults.

Historically, healthcare has been sought from a healthcare facility or institution and resulting typically in the patient being prescribed a medicinal or physical treatment. This is the healthcare avenue most used and accepted within society. To this end, occupational possibilities are occupations that are accepted within a specific socio-historical context and are considered as ideal and possible and as a result are occupations that are promoted and made available (Rudman, 2010). From an occupational possibilities lens, initiating research and conversations around Care Farming will bring Care Farming to the attention of the public, and spark interest in the initiative which could result in furthering of research, development and implementation based on societal interest and acceptance. An occupational-possibilities lens could be used to subtly influence society in accepting Care Farming as an appropriate approach to mitigating the health concerns of older adults.

4.3 What's missing?

This study highlights the interest potential of Care Farming and its potential to positively impact the health and well-being of older adults as expressed through the

perceptions of older adults and farmers. Participants from both populations within this study have expressed their interest in continuing conversations and discussions around Care Farming. The participants have indicated their willingness to participate in further development as well as offered to initiate conversations with other resources. Through these actions it can be deduced that there is interest within these populations to pilot a Care Farming program and further investigate its impact.

However, this study did not measure the impact Care Farming programs have on health, nor did it gather a healthcare perspective. Further research is needed to evaluate impact and understand healthcare professionals' perspectives of Care Farming initiatives.

4.4 Contributions to the literature

Prior to this study, no research on Care Farming in Nova Scotia existed. This study was conducted as a preliminary measure; an assessment of what the older adult and agriculture community in Nova Scotia understand and think of Care Farming as an alternative healthcare approach to mitigate health inequities experienced by older adults. This study contributes the perspectives of the stakeholder groups directly involved in Care Farming and their first voices and opinion about how to implement and develop Care Farming programs.

5.0 Limitations

The researcher attempted to recruit participants of varied ages and from each corner of the province, and participants area of residence and location of farm was quite vast however the number of representatives from each place was quite small, making it difficult to recognize trends based on demographic details.

Support and interest from the older adult and agriculture community was seen by the researchers as essential to the implementation and development of Care Farming, without these perspectives there would be no insight into the potential and feasibility of Care Farming initiatives from those directly involved and impacted. The study sample does not include healthcare professional and therefore their perspective on Care Farming is unknown.

In terms of recruitment, some participants found the study through the recruitment poster being circulated by the group or organization the participant belonged to, and others heard through snowball sampling (Valentine, 2005) by way of word of mouth, increasing the potential for individuals that travel in similar circles and who hold common interests, therefore there is a potential for the data to show a particular trend. In addition, participants needed to contact the key investigator using their own free will and it is possible that individuals who have a desire to get involved, or have an interest in outdoor, farming, or physical activities may have been more likely to participate.

6.0 Conclusion

It can be postulated that there is an understood potential and interest in using Care Farming approaches to improve the health and well-being of older adults living in rural areas. However, the researchers suggest more research on the topic focused on the development and implementation of a Care Farming pilot program and evaluation plan is needed to access the effectiveness of such programs in Nova Scotia.

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Chapter 4 : Discussion

This chapter aims to bring together the information on components and evaluation measures gathered from the scoping review and data on the feasibility potential of Care Farming as it relates to health concerns and inequities experienced by rural-dwelling older adults in Nova Scotia. A qualitative exploratory approach was used to develop an understanding of Care Farming and its potential for an alternative approach that may impact the health and well-being of older adults. To identify the components of Care Farming that contribute to health benefits and outline outcome measures used to evaluate success a scoping review was conducted. This was followed by focus groups and interviews with key stake holders (i.e. older adults and farmers) to gather opinions and perspectives on Care Farming as an alternative health care initiative. The data from the scoping review and the environmental scan were used to support the development of a Care Farm pilot and evaluation plan, as well as outline next steps toward development and implementation.

This chapter begins by outlining the literature and support for the initial motivation to investigate the potential of Care Farming initiatives impacting the health and well-being of older adults. Next the literature review and environmental scan are highlighted, and Care Farming is framed using an occupation and occupational possibilities lens, that could be used to address health concerns and inequities. This discussion of the findings with occupational perspectives helps to form a picture and an understanding around Care Farming and its potential to be used as an alternative healthcare approach.

Social isolation, physical decline and cognitive decline are concerns related to older adult health and well-being that have been outlined in literature. These concerns coupled with rural older adults limited access to healthcare services and supports has led to a growing population in search of accessible and equitable health services.

The scoping review

The eight studies included in the scoping review highlighted five components of Care Farming regularly reported as having a positive impact on program participants: engaging with nature/green environments; social opportunities and engagement; feeling useful and meaningful; positive impact on mental and physical well-being; and diverse activities. These components have potential to support some of the health concerns faced by older persons such as social isolation and loneliness, physical and cognitive decline, and have the potential to mitigate the structural and systemic inequities (e.g., social isolation, treatment decisions, accessible alternative treatments, etc.) this population has been known to face. The components that were regularly reported in the literature as positively impacting the health and well-being of older adults can be used as a basis for the development of a pilot program plan as well as develop a proposed evaluation plan to assess the impact on health and well-being from an occupational lens. Using what is known and supported in the literature is a strength in developing a Care Farming approach as an alternative healthcare initiative.

The key investigator who follows the work of Wilcock (2006) who underscores participation in meaningful occupations and recognizes meaningful occupations as health promoting. Throughout the conduction of the study an occupational lens was employed which flagged the component of feeling useful and meaningful in the literature review.

Additionally, there were a variety of qualitative and quantitative methods used to evaluate the data of the eight studies included in the scoping review, employing a variety of tests, assessments, questionnaires, and comparisons to measure the impact of Care Farming programs. Outcome measures were not consistently applied across the studies included in this review, and there is a need for a more holistic evaluation that aligns with participation in Care Farming programs and occupations to understand more about the positive impact Care Farming can have on health outcomes. As referenced in the organizational approach, the four commonly used outcomes identified in the articles selected for the scoping review were utilized to develop the evaluation plan (Appendix B).

The Environmental Scan

The data gathered from older adults and the agriculture community through interviews and focus groups offered insight into the potential for the feasibility of Care Farming approaches to improve the health and well-being of older adults living in rural areas that experience health inequities. Indications of interest and understanding were reported in the data which highlighted the feasibility of Care Farms and the potential for Care Farming programs to positively impact the health and well-being of older adults that experience health inequities living in rural areas in Nova Scotia.

Speaking to, and collecting opinions from stakeholders that would be directly involved and impacted by the implementation of Care Farming programs for older adults in Nova Scotia was an important part of gathering perspectives on the feasibility and potential of these programs as well as to identify aspects of Care Farming that should be understood and considered prior to development and implementation (a) to see if the

stakeholders are interested in the alternative health care approach, and (b) to have an awareness of all the intricacies and aspects deemed as an enabler/barrier or important to include/incorporate. There were three main categories identified from the data which are briefly outlined below: building the network; embracing person-centered programming; and aligning contexts for Care Farming.

Building the network by engaging with the local community, partnering, working with stakeholders, and finding the right people and the right place was recognized as important to the successful development and implementation of Care Farming programs.

Embracing the person-centered nature was highlighted throughout the discussions as central and integral to Care Farming programing, and Care Farming was reported as an adaptive and accommodating alternative model of care that offers an abundance of opportunities for a holistic approach to health. Altering peoples' perceptions of healthcare from traditional (hospitals, clinics, medications, etc.) to occupation-based alternatives (Care Farming) was noted as necessary to gain support of Care Farming initiatives. Study participants also recognized working together and being social while participating is an integral component that exists naturally in a farming environment.

Study data showed the importance of aligning the contexts for Care Farming such that there is mutual understanding of expectations and commitment by all parties (participants, farmers, other stakeholders) and noted the importance of offering compensation for the time and effort contributed by both participants and providers to Care Farms.

Occupation-based Approach

With occupations being defined as the range of tasks and activities humans engage in in our day-to-day lives that positively or negatively impact overall health (Wilcock, 2005), the key investigator and research supervisor identified an occupational perspective as well-suited to understand how Care Farming as an occupation-based approach has potential to offer an alternative healthcare avenue for older adults. More specifically, occupational possibilities are occupations that are promoted and made available based on ways of 'doing' that are accepted within a specific socio-historical context and are considered as ideal and possible (Rudman, 2010).The analytical lens of occupational possibilities was recognized as appropriate to the context of Care Farming and used to assess the potential opportunity to advance the understanding of Care Farming, and how Care Farming programs are shaped, implemented and altered within social systems and structures, in this case to address health inequities (Rudman, 2010) and potentially change the way older adult health might be envisioned that opens up opportunities in different places and spaces.

The need for healthcare initiatives that provide an equitable care service for older adults that address common health concerns of this population has been recognized, and the researchers believe Care Farming could be an initiative with the potential to fill that need. Components that recurred in the literature on Care Farming approaches with older adults were recognized as having a positive impact on older adult health and well-being. The conclusion of the review can be used to advance the understanding of older adult health concerns and further investigate Care Farming as a viable approach to addressing these concerns through the lens of occupational possibilities. Using the data collected from older adults on the impacts of Care Farms emphasizes the participants voice and

perspective and uses this data to support further development and research on Care Farming. In addition, this research brings attention to Care Farming's potential as an alternative healthcare approach with the intention to subtly influence opinions of society and decision makers on the occupational possibility of Care Farming as healthcare initiative (Rudman, 2010).

Occupational possibility was also supported by the interest potential that is apparent in the data collected from older adults and the agriculture community. Through the focus groups and interviews participants from both populations expressed an understanding of the potential health benefits, and the opportunities that exist within the agriculture community to pilot a Care Farming program. Rudman's (2010) occupational possibility approach was used during the conduction of the thesis project to raise more attention and awareness to Care Farming by explicitly asking key stakeholders their thoughts about Care Farming as an alternative healthcare approach thus beginning the conversation around further development and implementation of Care Farming programs. Research is powerful and has the ability to start the momentum and gradually influence what people view as the accepted way to approach healthcare from traditional medicine and care in institutions to a holistic approach promoting health in alternative places and spaces.

The conclusion outlines next steps, while considerations for development and implementation of a Care Farming pilot (Appendix A) and evaluation plan (Appendix B) can be found in the appendices.

Strengths and Limitations

The key investigator recognized the importance of prioritizing critical reflexivity and taking a step back from the research and attending to personal beliefs and assumptions when analyzing the generated data. The direct involvement of participants seeking help and contributing to a solution, and the confidence the key investigator has in the positive impact of Care Farming, may impact the analysis and results of the study. Recognizing the bias opinions of participants and researchers situated the results in a position of validity because the positions of both participants and researchers were considered throughout the process of the study.

Although this thesis project outlines components responsible for positive health outcomes, uncovers categories and sub-categories that outline the potential and feasibility of Care Farming programs, and propose an evaluation measure, this thesis project is exploratory and cannot be generalized. It does however, offer key insights for next steps toward a pilot and development for examining efficacy and effectiveness on impacting holistic opportunities for health in place as people grow older.

Conclusion

The literature review and environmental scan have highlighted the components commonly reported as positively impacting health and uncovered the potential interest for Care Farming. The structure of the focus groups and interviews allowed for open and casual dialogue between the key investigator and study participants, which encouraged suggestions on where to begin building and implementing Care Farming initiatives based on the farmers and older adults' knowledge and experience.

Suggestions were based around implementation and planning. Several farmers suggested beginning with smaller scale market or hobby farms, as these operations would

function mainly on manual labour offering various opportunities for participants to contribute to the farm; leaving less chances for machinery injury; and these less pressure/stress due to smaller expected production yield.

The inclusion of older adults in the planning and developing process was another proposition put forward by a few older adults, with one older adult noting "nothing for us, without us." Some even offered to assist with building a program and connecting to individuals within their networks that have knowledge or experience relevant to the Care Farming initiative.

Incorporation and consultation with a healthcare professional was also suggested to ensure programs function to benefit the physical, mental, and/or social health and well-being of participants. Many environmental scan participants stressed the importance of having supports available to address health concerns and any questions related to health, recognizing the added pressure associated with monitoring and understanding participants health on top of the agriculture responsibilities. Perspectives of Healthcare providers were not sought during the environmental scan as the key investigator and research supervisor wanted to ensure the preliminary work was complete by investigating the interest from the participants (older adults) and service/space providers (farmers) prior to seeking the interest of healthcare professionals. The interest of the participants and providers was seen as integral to Care Farming initiatives.

These suggestions would be used to inform the next step: building a working group of stakeholders. The working group would focus on implementing and monitoring the program and consist of stakeholders directly impacted by the implementation of Care

Farming. The working group could be involved in future research investigating the implementation of Care Farming and assessment of the proposed evaluation plan.

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Appendix A: Considerations for Care Farming Pilot Plan

When developing the Care Farming pilot plan data and information from both the scoping review and environmental scan was used to determine components to include in the development and implementation of a Care Farming program to increase likelihood for success. Each of the 5 components from the scoping review was utilized to outline what is to be included and incorporated in the Care Farming Pilot Plan. The next paragraphs outline components to be included based on information from the scoping review, with some components supported by the environmental scan.

Following the components of what to incorporate into a pilot there is an outline of who to include and how to enhance the likelihood of success based on information and data collected during the environmental scan.

Engaging with nature/green environment and animals

Natural and green environments are known to benefit health. Programs will be developed to ensure participants engage with the natural, green environment and/or the animals on a farm, ranging from physical tasks, activities and chores to simply sitting taking in the surroundings.

A place for social opportunities and engagement

There is a social aspect to health that shouldn't be overlooked when considering the overall health of an individual. It was recognized among the key components from the literature and was also reiterated by study participants in the environmental scan, recognizing the value in socializing and working collaboratively. Programs will be developed to encourage socialization to casually occur between participants as well as with the farmer.

Activities or Factors that promote feeling useful and meaningful

Care Farming participants report feeling useful and meaningful due to their ability to contribute to the farm, which aligns with Hammell's (2004) emphasis on the meaning of occupational experiences and their positive impact on an individual's quality of life. Part of development of the program will ensure Care Farming programs include opportunities for participants to take part in occupations that contribute to the functioning and productivity of the farm, assisting in meeting the operational needs of the farm which was identified in the environmental scan as important to farmer and contributing to its overall productivity.

Activities or factors that positively impact mental and physical well-being

Being outdoors and working in the dirt, typical occurrences of Care Farming, were recognized by the participants in the environmental scan as benefitting the overall health of an individual. Development of Care Farming programs will take advantage of the opportunities offered in a farming environment to incorporate and include activities that have been known or understood to positively impact mental and physical well-being.

Diverse activities

The diversity of activities of Care Farming was expressed in the articles included in the scoping review and reiterated in the data generated from discussions in the environmental scan noting the adaptable and accommodating nature of farming. The various ways to complete tasks and participate in activities on a farm component that will be taken advantage of and used to meet the participants where they are at in terms of interests and abilities.

Implications for a pilot and what is needed to develop a pilot program

The data from the environmental scan outlined the importance of building a network with those who will be directly involved.

Engaging the local community and collaborating with stakeholders like the agriculture industry and health professionals, specifically those willing and wanting to partner, to develop and outline a program was recognized in the environmental scan as integral to the success of the program. Training and education around the various nuances of Care Farming such as understanding of farming activities and being able to address health concerns, mental or physical, was noted as important by participants in the Environmental scan.

Care Farming is not a traditional place for or approach to health care (traditional being: treatments, medication, care plans for a particular ailment) and has been reported in the environmental scan as an alternative model of care. Its ability to be person-centered, as noted in the environmental scan, by meeting participants where they are at in terms of ability and comfort level is an asset and is complimented by the ability for a task or activities to be adaptable and accommodating. Utilizing the alternative, person-centered, adaptable and accommodating approach offers an abundance of opportunities to meet a varied range of health concerns as well as offers a number of ways to benefit those participating. Development of a Care Farming pilot will be done using these assets with the intention of implementing a diverse and adaptable program that can meet a varied range of needs and abilities.

Understanding and aligning priorities, responsibilities, expectations, and what each stakeholder is able to offer was outlined in the data from the environmental scan. When developing the program, ensuring all those involved have the ability to express

their availability and expectations and are supplied with all the necessary information regard responsibility, expectation and time commitment was noted as important. The programs will be developed so farmer/providers and participants are matched based on what both the participant and the farmer are able to offer based as well as the extent of participation of the participant and the amount/level of work expected by the farmer to ensure the farm production is not impacted by the added responsibility of a Care Farming participant. Compensation was noted by both populations in the environmental scan is a component that needs to be sorted out such that the value of the time and commitment to the program by both providers and participants is recognized.

Barriers were noted during environmental scan discussions to make sure any identified barriers were appropriately addressed prior to implementation and during development of the pilot plan. The approach to address the noted barriers may vary based on the partner and is are items to discuss with partners. Those barriers include: transportation, insurance and the typical dangers and risks on a farm

The activities, tasks and chores within Care Farming have been reported as positively impacting the health and well-being of participants, supporting the occupation-focused approach and linking to the occupational possibilities of Care Farming. Recognizing the occupational possibilities of Care Farming, development and implementation of Care Farming should capitalize on the social and structural acceptance of accessing health in a way that encourages staying busy while being productive. Care Farming is an innovative interdisciplinary program that offers a service (healthcare initiative) while also producing goods (food) and an approach that has to potential to gain socio-historical supported (Rudman, 2010).

Appendix B: Evaluation plan

(An evaluation plan to be used to assess the impact of Care Farming programs on the health and well-being of older adults)

The scoping review identified four commonly reported themes among the evaluation outcomes (1) physical health/fitness; (2) social relations/engagement; (3) psychological well-being/stress levels; and (4) quality of life. To be noted is the prevalence and support for qualitative methods and the relevance of occupation-based outcomes in Care Farming. A proposed evaluation plan for the Care Farming pilot is to interview participants based on the four commonly reported themes and to include occupation-based questions around the meaning and impact of the activities, tasks and chores they are engaging in at the Care Farming programs and relate to how those activities, tasks and chores are impacting their health and well-being.

Appendix C: Interview Guide(s)

Scoping Review Purpose

- Conduct scoping review to find research on Care Farming. Find what is known, find gaps, find commonalities between programs
- Use information from scoping review to generate questions for focus group interview guide.

Focus group (FG) Purpose

- FG participants will be asked what it is like living in rural communities; are there challenges and barriers to accessing healthcare services?
- FG participants will then be briefed on care farming with a short presentation by lead researcher
- FG interviewing/meeting will continue after presentation, addressing topics around care farming and its potential opportunities and strengths
- focus group meetings will be approx. 90-120 minutes with a brief break in middle (light refreshments)

- an interview guide will be developed for each population (older adults residing in rural areas; ag community) containing 5-6 questions each.

Older adults:

(1) Do you have access to healthcare services/ health promotion programs in your rural community? What are the barriers to accessing health services/health promotion programs living in a rural community? (is it transportation? Is it lack of accessibility in programs? Is it costly? Is it lack of options appropriate for service needed? Is there only limited space for patients/clients?)

(2) What are the challenges to accessing health services/ health promotion programs living in a rural community? (Does it cause your health issue to become worse? Does it not fit your medical/healthcare needs?)

Presentation - Introduction to Care Farming

(3) Did you know anything about Care Farming before this presentation? What is your opinion or perception of Care Farming? Is Care Farming something you would be interested in?

(4) What are the opportunities for Care Farming in your community? Do you believe Care Farming will address some of the barriers and challenges to health care services in your community?

(5) What are some of the strengths of Care Farming programs that you believe will address the barriers and challenges in your community?

(6) Do you have any additional Comments?

Appendix C (Cont'd)

Agriculture Community:

(1) Are there many older adults in your community? What are the barriers to healthcare services/ health promotion programs the older population in rural communities experience? (is it transportation? Is it lack of accessibility in programs? Is it costly? Is it lack of options appropriate for service needed? Is there only limited space for patients/clients?)

(2) What are the challenges to accessing health services/ health promotion programs older adults in rural communities experience? (Does it cause your health issue to become worse? Does it not fit your medical/healthcare needs?)

Presentation – introduction to care farming

(3) Did you know anything about Care Farming before this presentation? What is your opinion or perception of Care Farming? Is Care Farming something you would be interested in?

(4) What are the opportunities for Care Farming in your community? Do you believe Care Farming will address some of the barriers and challenges to health care services in your community?

(5) What are some of the strengths of Care Farming programs that you believe will address the barriers and challenges in your community?

(6) Do you have any additional Comments

Appendix D: Full summary of Review Articles

Article Author and Year of publication	Definition of Care Farming	Study Design and Method	Number of Participants Age range Aliments/Health Conditions	Benefits	Opportunities	Challenges	Outcome Measures
Ibsen & Eriksen (2021)	Farm-based day care service (FDC) uses **activities and resources in the environment at a farm to promote mental and physical health** (p. 1357)	Qualitative and descriptive design (Individual interviews)	**10** participants	social relations -being occupied and active -individually tailored service/program	Opportunities to: -participate, due to individual alterations -socialize, engage in work, be outdoors -hold responsibility & contribute -engage in physical activities -supplement regular day care	Physical Health Interest Cognitive Health Mindset or opinions of what health services should look like	Semi-structured interviews used to draw out the experience, and interactions with other participants and activities to connect 'salutoenesis' (Antonovsksy, 1993, as cited by Ibsen & Erikson, 2021)
Hassink et al. (2010)	Care farming is a **growing movement that combines agricultural production with health, social, and educational services** (Hassink et al., 2007; Hine et al., 2008, Elings and Hassink, 2008). **Care farming aims to provide health, social or educational benefits through farming activities for a wide range of people** (Hine et al., 2008). (p. 424)	Qualitative & quantitative (Qualitative interviews, with some quantitative stats)	41 clients (**12** eldery) Elderly participants (no identified age range) No severe signs of Dementia	community on the farm -attitude of the farmer -non-care context -type of work -green environment	Opportunities to: -remain active -engage with and appreciate nature in authentic farm environment	The necessity of getting back to work	Semi-structured interviews aimed at assessing feelings of empowerment - leading to improved quality of life (Rodwell, 1996, as cited bu Hassink et al., 2010)
Gagliardi et al. (2018)	*Care farming, also known as "green care" or "care farms," social farming is a practice that **uses the resources offered by farms (e.g., animals, plants, and landscapes) to provide social or educational care services and promote well-being as well as mental and physical health** (Hassink & Van Dijk, 2006; Sempik, Hine, & Wilcox, 2010).*	Quantitative data (Questionnaire)	**73** participated entire length of study Age Range 64-80 "Good general health"	growth of social circle -learning from peers -increased activity in day-to-day life	Opportunities to: -increases leisure activities	complex environment -cognitive and physical ailments could be limiting -ensuring participants are properly supported to continue attending	Minimum Data Set Home Care Assessment (Landi et al., 2000, as cited in Gagliardi et al., 2017)
Han et al. (2018)	This program was a horticultural therapy program which development was centred around plant cultivating activities	Quantitative (Meaurements of cortisol and physical fitness test and a questionnaire)	**28** participants. Age Range 77-83 Depressive disorders	stress reduction -promotes psychophysiological relaxation -improved fitness	Opportunities to: -improve stress and physical abilities	long term effect unknown	Senior Fitness Test (Rikli & Jones, 1999, as cited in Han et al., 2018)
Santini et al. (2020)	*Green care activities is, **the use of nature to produce health, social, or educational benefits, including horticulture, gardening, sowing, pruning, and pet therapy** (Sempik & Bragg, 2013; Sempik, Hine, & Wilcox, 2010).* (p. 1241)	Qualitative Pilot Study (Focus group discussions)	**90** participated the entire length of study Age Range 65-75 No identified aliments	positive impact on physical well-being -improved mood -improvement in memory -increased sense of usefulness	Opportunities to: -develop new manual competencies -learning new skills	Health issues a barrier to participating	Focus group discussions aimed at investigating mechanisms responsible for impact on Active Aging (AA) determinants (World Health Organization [WHO], 2002, as cited by Santini et al., 2020).
Ura et al. (2018)	Named "green care farms", **this form of care is an empowerment- oriented, strengths-based, and community-based service that aims to improve the quality of life of people with dementia** (Hassink et al., 2010).	Quantitative (Questionnaire)	**8** participants Age Range 62-74 Cognitive impairments	subjective and objective enjoyment -social relations -tangible produce (rice) -positive impact on well-being	Opportunities to: -engage in Japanese culture -encourage community living and social participation	No challenges expressed	WHO-J-5 (Awata et al., 2007, as cited in Ura et al., 2018
de Bruin et al. (2015)	*Green care farm **combines agricultural activities with care services** for a variety of client groups (de Bruin et al., 2009; de Bruin et al., 2010). (p. 2)*	Qualitative descriptive study (Semi-structured interviews)	**21** Attended services at a green care farm Age Range 64-78 Dementia	induced feelings of usefulness and meaningfulness -participants felt "part of something" -activities were socially relevant -how participants were approached was appreciated -enabled social participation -participants felt a sense of belonging and able to contribute to something	Opportunities for: -Social participation -to meet the preferences and capacities of participants -diverse services	Not feasible to deliver everywhere -the need for these kinds of services will vary	Semi-structured interviews assessing the operationalization of social participation (Hoeymans et al., 2015, as cited by de Bruin et al., 2015)
Ibsen et al. (2018)	*Farm-based day care (FDC) services are described as **services that have been adapted from the farm setting, using farm resources to promote health.*** (p. 349)	Qualitative description using quantitative analysis (Two cross-sectional surveys)	**227** Participants Age Range 50-96 Dementia	special context for the day care service -presence of animals or cultivated land offered sensory experiences -activities took place outdoors	Opportunities to -walk in cultural and outdoor landscape -engage with animals -be integrated into ordinary farm life	interests and abilities may limit the people willing and able to participate -not all are interested in animals	Two cross-sectional surveys collecting information on the Care Farms and what was included in their day care services.