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Investigating Nonverbal Strategies to Support Communication with Persons Living with Dementia

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Abstract

Many persons living with dementia experience difficulties comprehending language and benefit from nonverbal communication (NVC). This research aimed to identify potential strategies for nonverbal behaviour adaptation to enhance communication with persons living with dementia, based on the Communication Enhancement Model. Studies included a scoping review of NVC strategies for caregivers with persons living with dementia and an analysis of whether NVC strategies used by personal support workers (PSW) co-occurred with verbal communication demonstrating person-centered indicators (recognition, negotiation, validation and facilitation). Video-recorded interactions (n=40) between PSW and simulated persons living with dementia were analysed using a codebook of NVC strategies (facial expression, gaze, gestures, touch) developed from review findings. Co-occurrence with person-centered verbal communication was examined. Of 1848 person-centered communication-units, 69% co-occurred. Gaze co-occurred with all person-centered indicators frequently (40-49%). Gestures using objects predominantly co-occurred with facilitation (17%) and negotiation (21%), suggesting distinct NVC strategies may align with selected person-centered indicators.

Keywords

Person-centered communication, Nonverbal communication, Caregiver, Dementia, Communication enhancement model, Gaze, Gestures, Facial expression, Touch, Body position

Summary for Lay Audience.

The Communication Enhancement Model explains that when care partners adapt their communication using strategies matched to the needs and abilities of older adults, this can lead to enhanced communication with those they care for, among other benefits. Many persons living with dementia experience difficulties comprehending language and may benefit from nonverbal communication. Therefore, this research aimed to identify potential strategies for care partners to adapt their nonverbal behaviour in order to enhance communication with persons living with dementia.

A scoping review examined the current literature for nonverbal communication strategies for care partners which have been observed to support communication with persons living with dementia. Findings revealed six supportive strategies: gaze, gestures, facial expression, touch, close proximity, and frontal orientation. These results contributed to the development of a novel codebook of nonverbal communication strategies. The second study used the codebook to analyse forty video-recorded interactions between personal support workers and actors portraying persons living with dementia. The study aimed to determine whether nonverbal strategies identified to support communication with persons living with dementia in the extant literature, co-occurred with verbal communication demonstrating person-centered interaction. Indicators of person-centered communication included 'Recognition', 'Negotiation', 'Validation' and 'Facilitation'. Written transcripts were segmented into communication-units. Out of 1848 person-centered communication-units, 69% co-occurred with nonverbal communication strategies. This finding shows that personal support workers frequently accompany verbal communication with nonverbal communication strategies in demonstrations of person-centered communication with persons living with dementia. Gestures with an object frequently co-occurred with facilitation and negotiation, and not recognition and validation. Conversely, positive facial expressions co-occurred with recognition and validation frequently but infrequently co-occurred with facilitation and negotiation. These results suggest that distinct nonverbal communication strategies may align with specific person-centered indicators. Findings make a significant contribution to the current literature by identifying potentially beneficial strategies which, if applied in practice, could equip care partners to create the communication enhancement model in their interactions with persons living with dementia.

Co-Authorship Statement

This thesis is composed of original work conducted and written by Emma N. Bender in fulfillment of a Master's of Science under the supervision of Dr. Marie Y. Savundranayagam. The thesis consists of an introductory chapter (chapter one), a scoping review (chapter two), a secondary data analysis (chapter three), and a concluding chapter (chapter four). Chapter two was submitted for publication in a peer-reviewed journal (the International Journal of Nursing Studies) on January 16, 2022 (citation and CRediT author statement below), with revisions suggested by reviewers currently being addressed. Chapter three has not been submitted for publication. The data analyzed in chapter three was collected by Dr. Savundranayagam and members of the Sam Katz Community Health and Aging Research Unit at Western University.

Dr. Savundranayagam provided invaluable guidance in the conceptualization, design, analysis and interpretation of both studies (chapters two and three). Additionally, the advisory committee, Dr. Laura Murray and Dr. J. B. Orange, provided input into the conceptualization and design of both studies. All mentioned collaborators provided revisions and feedback on all chapters included in this thesis.

Citation (Chapter Two):

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CRediT Author Statement (Chapter Two):

Emma N. Bender: Conceptualization, Formal analysis, Investigation, Writing – Original draft, Writing – Review and editing, Visualization, Project administration, Funding acquisition. **Marie Y. Savundranayagam:** Conceptualization, Investigation, Writing – Review and editing, Supervision, Project administration. **J.B. Orange:** Conceptualization, Writing – Review and editing, Supervision. **Laura Murray:** Conceptualization, Writing – Review and editing, Supervision.

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Chapter 1

1 Introduction

Dementia is the seventh leading cause of mortality globally, currently affecting 55 million people worldwide (Alzheimer's Disease International, 2021) and projected to reach a prevalence of 152 million by the year 2050 (Alzheimer's Disease International, 2018). Therefore, the need to support persons living with dementia and their partners in care is imperative.

1.1 Background

The Diagnostic and Statistical Manual of Mental Disorders defines dementia under the term, Major Neurocognitive Disorder, as well as recognizes a less severe level of cognitive impairment, Mild Neurocognitive Disorder (American Psychiatric Association, 2013). These are described as significant (Major) or moderate (Mild) cognitive declines, respectively, from a previous performance-level in one or more cognitive domains including complex attention, executive function, learning and memory, language, perceptual-motor, or social cognition that does not occur exclusively in the context of a delirium or due to other mental disorders (American Psychiatric Association, 2013). Cognitive deficits are defined as major when they interfere with independence in everyday activities.

Effective communication, particularly for persons living with dementia, is fundamental to providing genuine care (Johnsson et al., 2018; Wiechula et al., 2016). However, the quality of communication with and care of persons living with dementia can be threatened if care partners (including family or those who provide care formally) do not accommodate for communicative impairments. Dementia can cause impairments in communication, including expressive language (e.g., word-finding, syntax) and receptive language or comprehension (American Psychiatric Association, 2013). Of particular importance is that communication is comprised of both verbal and nonverbal elements (Gross, 1990; Ryan et al., 1995a). Nonverbal communication refers to communication effected by means other than words (Knapp et al., 2014). Common aspects of nonverbal

communication include gestures, posture, touch, facial expressions, and eye behaviour. Evidence suggests that individuals living with dementia (Orange et al., 1995; Small et al., 2017) and, more broadly, older adults in long-term care settings (Small et al., 2015; Zaletel et al., 2012) rely on the nonverbal behaviours of others to aid communication reception. Therefore, care partners must be attentive to the nonverbal communication behaviours of the person living with dementia, as well as consciously attend to their own nonverbal communication strategies to support persons living with dementia.

1.2 Aims, Significance and Outline of the Research

This research aimed to address the question: 'what strategies can be used by care partners to adapt their nonverbal communication in order to potentially enhance communication with persons living with dementia?'. The studies described in the following chapters aimed to investigate nonverbal strategies used by care partners which reportedly support interaction, and further, co-occur with person-centered verbal communication, with persons living with dementia. For the purposes of this research, the term 'care partner' includes formal healthcare professionals (e.g., personal support workers) and informal care providers (e.g., family members).

1.2.1 Significance

Care partners must adapt their nonverbal communication using strategies which promote communication enhancement to effectively support the increasing number of persons living with dementia. However, knowledge gaps restrict care partners' ability to do so. This research aimed to equip care partners with potential person-centered adaptations to their nonverbal communication. Such adaptations could contribute to a positive feedback loop leading to opportunities for empowerment, increased well-being, and communication enhancement among persons living with dementia and their care partners.

1.2.2 Thesis Outline

The introductory chapter provided the background of the present work. Chapter Two describes a scoping review of the current literature to map existing knowledge and gaps related to supportive nonverbal communication and persons living with dementia. The

scoping review presents nonverbal communication strategies which are reported to support communication with persons living with dementia in the extant literature, as well as areas for future research which are addressed within a subsequent study in Chapter Three. A manuscript on the scoping review has been submitted to a peer-reviewed journal, with revisions currently being addressed.

Chapter Three presents an analysis of nonverbal communication strategies which co-occurred with verbal communication demonstrating person-centered interactions. The study describes whether and how nonverbal strategies identified to support communication with persons living with dementia in the extant literature (Chapter Two) co-occurred with verbal communication demonstrating person-centered communication indicators. The findings of this study suggest several nonverbal communication strategies may contribute to communicating specific person-centered messages to persons living with dementia in practice. Concluding thoughts are provided in the final chapter.

Chapter 2

2 A Scoping Review of Supportive Strategies for Nonverbal Communication with Persons Living with Dementia[1]

This chapter describes a scoping review of nonverbal communication strategies for care partners which have been observed to support communication with persons living with dementia in the extant literature, and outcomes which indicate they are supportive for communication.

2.1 Background

Effective communication plays a key role in ensuring quality care provision and an understanding of each person's social and care needs (Nguyen et al., 2018; Wanko Keutchafo et al., 2020). Successful communication with persons living with dementia can be dependent on care partners' abilities to assess and to adapt to their needs and strengths (Hansebo & Kilhlgren, 2002; van Manen et al., 2020). Persons living with dementia use nonverbal communication to convey their own needs, and also rely heavily on the nonverbal behaviours used by their care partners to help comprehend conversation, especially as dementia progresses (Orange et al., 1995). Care partners can use nonverbal communication to convey or to attenuate attention, care, presence, interest and a desire to communicate (Wanko Keutchafo et al., 2020). However, inappropriate nonverbal strategies can also communicate harmful messages which may negatively impact the well-being of persons living with dementia, as well as older adults broadly.

The Communication Predicament of Aging model, shown in Figure 1, explains that older adults are often subjected to a negative feedback loop that occurs when younger individuals adapt their communication with older adults based on stereotyped assumptions (e.g., that older adults are dependent and incompetent) (Coupland et al., 1991; Giles, 2016; Hummert et al., 2004; Ryan et al., 1986; Ryan et al., 1995a).

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[1] A version of this chapter has been submitted for publication (citation provided on page iv)

Consequently, patronizing communication behaviours are used, including both verbal (e.g., childlike terms) and nonverbal features (e.g., low eye contact, frowning, or having crossed arms), with the nonverbal message often carrying greater significance when verbal and nonverbal meanings conflict (Ryan et al., 1995a). Ryan and colleagues (1995a) suggested that patronizing communication can negatively impact the self-esteem, well-being and psychological status of older adults, especially those living with cognitive impairment.

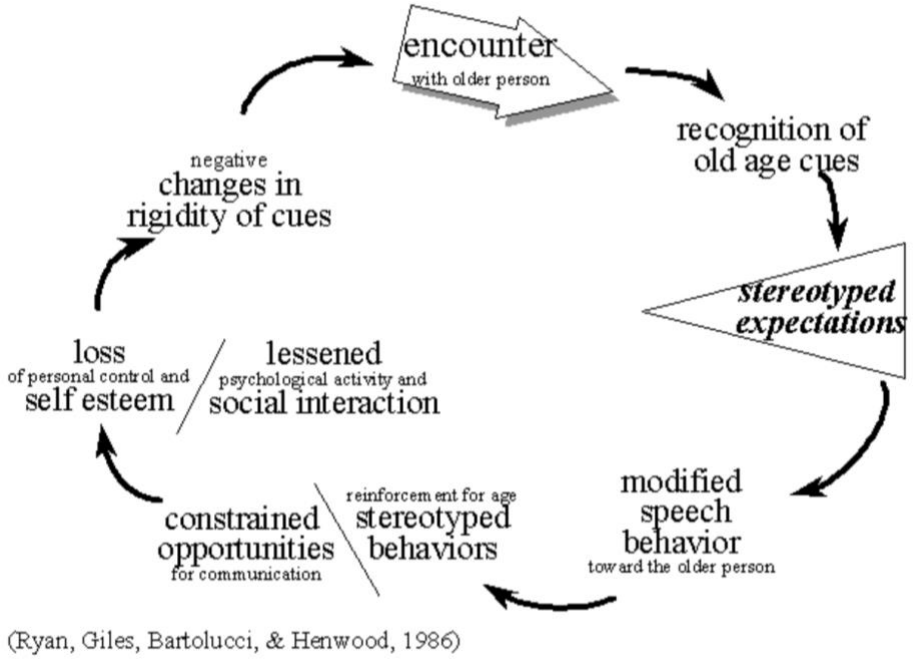

Figure 1: Communication Predicament of Aging Model

Problematic communication also can negatively impact care partners. Poor communication with persons living with dementia is associated with consequences for care partners such as conflict in relationships, social isolation, increased responsive behaviours of persons living with dementia, and increased burden and stress (Richter et al., 1993; Richter et al., 1995; Savundranayagam et al., 2007). For example, investigators who examined caregiver burden found that communication problems are linked to behaviours of persons living with dementia that are perceived as problematic for care partners (e.g., becoming restless, suspicious, or irritable) (Savundranayagam et al., 2005). Consequentially, these behaviours are associated with increased burden among family

members caring for relatives living with dementia. Family members reported that communication breakdowns are problematic and reduce the quality of their interactions and relationships with relatives living with dementia (Orange, 1991; Rabins et al., 1982; Savundranayagam et al., 2005).

Thus, it is critical that care partners are aware of how to modify their nonverbal communication in a way that does not result in patronizing and/or problematic communication, but empowers people living with dementia and enhances communication.

2.1.1 The Current Literature

There is a small but growing literature on the elements of nonverbal communication between persons living with dementia and their care partners. Despite a large emphasis on the verbal communication behaviours of care partners, there has been less attention devoted to care partners' nonverbal communication (Caris-Verhallen et al., 1999; Hall & Roter, 2006; Wanko Keutchefo, 2020; Xu et al., 2012). Additionally, previous literature reviews revealed that there is little information about what constitutes effective verbal and nonverbal communication skills for care partners of persons living with dementia in residential care settings (Cameron et al., 2020; Machiels et al., 2017; McGilton et al., 2009). Alsawy and colleagues (2017) conducted a systematic review that examined what is considered to be 'good communication' among persons living with dementia. They defined 'good communication' as being perceived as good or meaningful by persons living with dementia, their family members, or healthcare professionals. However, their review only included studies that examined perceptions, rather than verifiable data (e.g., observations), and was not specific to nonverbal communication. Wanko Keutchafo et al. (2020) conducted a scoping review of nonverbal communication between nurses and older adults, finding that nurses should be self-aware of their nonverbal communication behaviours and the importance of communication modification based on individual patient need. However, persons living with dementia were excluded from this study. van Manen et al. (2020) in their scoping review identified factors (e.g., skills and approaches) associated with communication between nursing staff and persons living with dementia. Their review was not specific to nonverbal communication. Interestingly, these latter two

reviews focused only on nurses (Wanko Keutchafo et al., 2020) and nursing staff (van Manen et al., 2020), excluding family care partners. This omission is significant as the impacts of problematic or supportive communication in care contexts outside of nursing care or formal care settings have been ignored. However, most older Canadians living with dementia reside in the community. Analysis by the Canadian Institute for Health Information found that of Canadians 65 and older, living with dementia in 2015-2016, 61% resided outside of publicly funded long-term care homes (CIHI, n.d.). Thus, there is a significant need to include informal or family care partners in analyses of current evidence regarding nonverbal communication with persons living with dementia.

2.1.2 Purpose

In response to these gaps in the existing research, a scoping review was undertaken that aimed to investigate nonverbal strategies for care partners which have been observed to support communication with persons living with dementia, and to determine what outcomes were observed which indicate that these nonverbal strategies are supportive for communication.

2.2 Method

A scoping review, guided by the Joanna Briggs Institute guideline for scoping research (Peters et al., 2020), was conducted to map existing knowledge and gaps related to nonverbal communication and persons living with dementia. Scoping reviews are undertaken to map key concepts and are used to review research areas that have not been previously reviewed comprehensively (Arksey & O'Malley, 2005). A scoping review was deemed the most appropriate study design because this is the first published evidence synthesis to focus solely on nonverbal communication strategies for care partners of persons living with dementia.

2.2.1 Review Questions

The current review aimed to answer two research questions: (1) What nonverbal communication strategies for care partners have been observed to support communication with persons living with dementia in the extant literature? (2) What outcomes were

observed in the extant literature which indicate that these nonverbal strategies support communication?

2.2.2 Inclusion Criteria

Inclusion criteria for this scoping review were based on the ‘Population, Concept, Context’ criteria suggested by the Joanna Briggs Institute framework (Peters et al., 2020).

2.2.2.1 Population

The population for the review included formal care partners (healthcare providers of any profession) or informal care partners (e.g., family members) of persons living with dementia. Studies in which care-recipients were not persons living with dementia were excluded.

2.2.2.2 Concept

The concept examined was the observed nonverbal strategies of care partners and how these supported communication with persons living with dementia. Nonverbal strategies included behaviours such as gestures, posture, touching behaviour, facial expressions, and eye behaviour (Knapp et al., 2014). Studies that did not include descriptions of nonverbal communication strategies in sufficient detail or did not discuss how the strategies supported persons living with dementia were excluded. Ineffective nonverbal communication strategies were excluded as nonverbal features of patronizing communication are a well-defined element of elderspeak (Ryan et al., 1995a).

2.2.2.3 Context

No limitations were placed on context. Studies conducted in any contextual setting were eligible for inclusion.

2.2.2.4 Type of Evidence

Empirical studies published in peer-reviewed journals were included. Only analytical (inferential) studies were of interest as these assess the relationship between variables (Ranganathan & Aggarwal, 2018). Observational or experimental studies, using

qualitative and/or quantitative methods were eligible for inclusion. Only studies which collected verifiable evidence of nonverbal communication strategies, in the form of observations (direct or video), were eligible. Gray literature (e.g., dissertations) and non-empirical studies (e.g., literature reviews) were excluded. Only studies published in English were eligible for inclusion.

2.2.3 Search Strategy

An iterative process was used to develop a search strategy, in collaboration with a research librarian at Western University in London, Canada. An initial search of two databases recommended by the librarian (CINAHL and PsycInfo) followed by a brief analysis of retrieved studies was conducted by the primary investigator (EB) in November of 2020, to determine the effectiveness of the search strategy. Once finalized, a search of all identified keywords, index terms and main headings (where applicable) was undertaken by EB on December 8, 2020 across four databases recommended by the librarian: Scopus, PubMed, CINAHL and PsycInfo. Search strings were altered as needed to fit the format of each database and searched in title and abstract fields. Table 1 presents the search string used in the current scoping review. The search terms were broadened to include older adults generally (not specified as living with cognitive impairment) to ensure studies that included persons living with dementia were not excluded. However, studies that included older adults but not individuals living with dementia were then excluded based on full-text review by EB. All publication dates were included since no previous reviews of this scope have been conducted. Hand-searching for additional sources that may have been missed also was completed by EB, including screening relevant articles and reviews for further sources which met the inclusion criteria as well as consultation with co-investigators (MYS, JBO, LM) to identify key authors.

Table 1: Comprehensive search string

Keywords	Search terms[1]
Nonverbal Communication	non verbal or nonverbal or nonverbal communication or non verbal communication or eye contact or body language or facial expression* or gestur*
	AND
Dementia / Older Adult	dementia* or Alzheimer* or cognitive impairment* or older adult* or elder* or resident* or long term care or nursing home
	AND
Care Partner	care partner* or caregiv* or care giv* or carer or carers or health care providers or healthcare providers or health care professionals or healthcare professionals or health care provider or healthcare provider or health care professional or healthcare professional or older adult care or gerontologic care or elder care or health care worker or healthcare worker or health care workers or healthcare workers or staff or nurse

Note. [1] Headings applied where applicable.

2.2.4 Evidence Selection

The search and screening process was conducted by EB, with consultation from MYS throughout the review. Search results across all included databases were imported to the reference management software, Covidence (Veritas Health Innovation, 2014). Duplicate studies were automatically removed. All remaining studies were screened by title and abstract by EB based on the pre-determined inclusion criteria, consulting with MYS to identify common themes in the literature which could be excluded by category (e.g., pain scales examining the nonverbal communication of persons living with dementia only). Records identified as ‘maybe’ were discussed between EB and MYS for final disposition. Full-text screening of eligible and unclear records then was conducted. Using a sole primary reviewer is a deviation from the scoping review methodology proposed by the Joanna Briggs Institute and others. However, consultation with MYS throughout evidence selection to provide guidance and confirmation supported the integrity of this review process.

2.2.5 Data Charting and Presentation

Data charting was completed by EB, with verification from MYS. An evidence summary table was created using Excel to organize the following data: title, author(s), year, aim, participant description, living/recruitment context, research methods, supportive nonverbal communication strategies, and observed outcomes of nonverbal communication strategies. Additionally, studies included by full-text review were uploaded to NVivo (data analysis software) (QSR International Pty Ltd., 2020). Data collection methods and nonverbal communication strategies were coded using nodes within NVivo to assist in analysis of evidence.

The quality of the studies included in the current review was assessed critically by EB and MYS independently, using standard quality assessment criteria designed to evaluate primary research papers (Kmet et al., 2004). The set of criteria was chosen due to its applicability to the variety of study designs (qualitative and quantitative) included in this review. Checklists including all criteria can be found in Appendix A. While it is not typical of scoping reviews to assess the quality of studies, reporting study quality was an important aspect of understanding the breadth and depth of this research area. Studies were not included or excluded based on quality assessment results. Each rater determined independently whether the study satisfied each criterion (yes=2, partially=1, no=0, not applicable=N/A). An overall score was calculated by dividing the sum of items by the total possible score (excluding nonapplicable criteria). Therefore, the maximum quality score which could be achieved was 1.0. Discrepancies between the two raters were discussed and the scores were either revised or reported in cases which were not resolved.

2.3 Results

2.3.1 Literature Search

The search strategy yielded a total of 1506 studies. After duplicates (n=563) were automatically removed through importing to Covidence, 943 records were reviewed by EB based on title and abstract. Records which did not meet the inclusion criteria were removed (n=753), and the full-texts of the remaining 190 articles were assessed for eligibility. Hand-searching of relevant reference lists and databases resulted in an

additional three included studies. The screening and evidence selection process is displayed in a PRISMA diagram adapted from Moher and colleagues (2009) (Figure 2). In total, 16 studies were included.

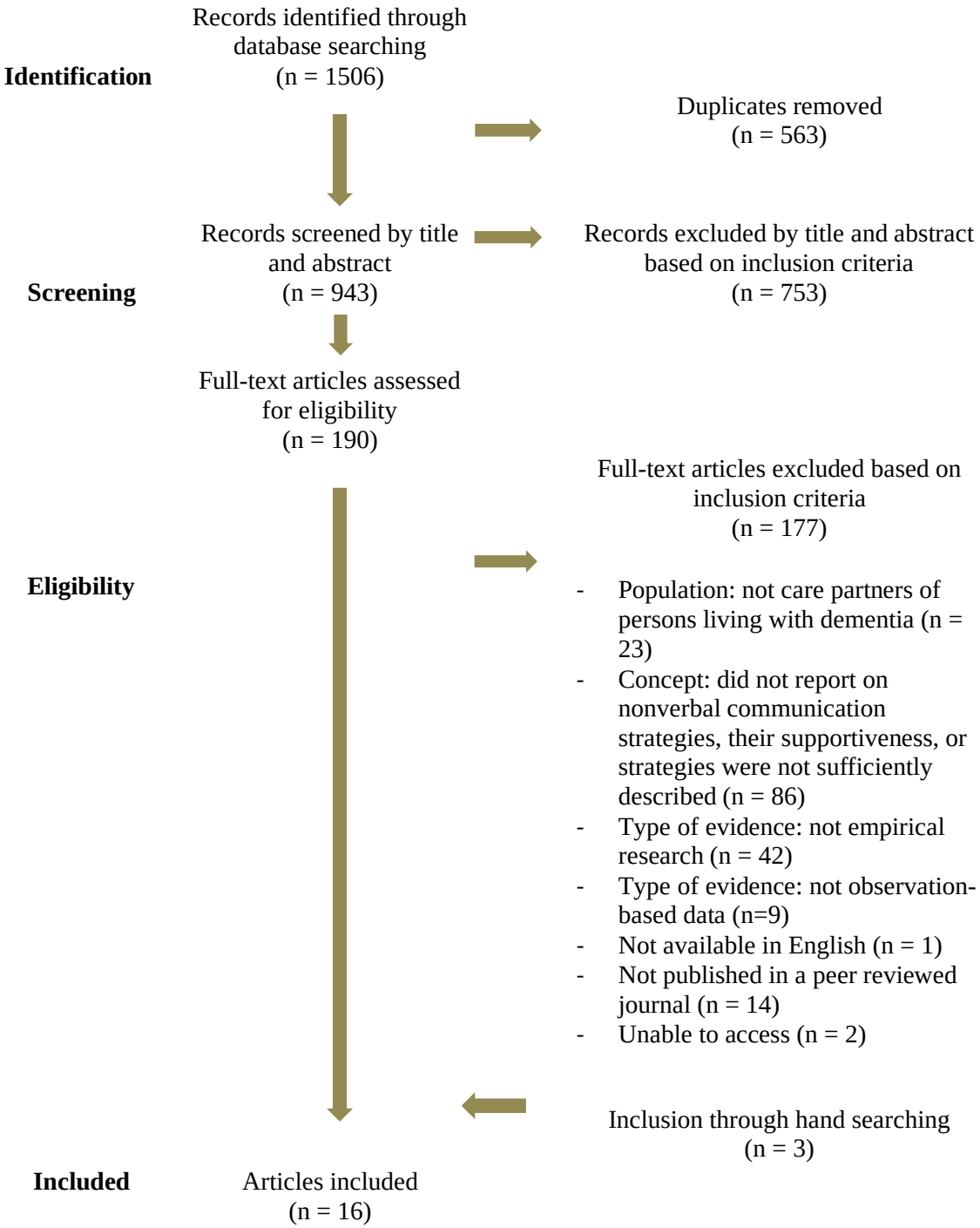

Figure 2: PRISMA diagram

2.3.2 Characteristics of Included Studies

The majority of articles were published after 2010 (n=9), with the remaining articles (n=7) published between 1982 and 2006. Table 2 summarizes the characteristics of the 16 studies. Table 3 summarizes the aims of the studies, the supportive nonverbal communication strategies, and observed outcomes.

Table 2: Characteristics of included studies

	Author(s) & Year	Care Partner Description	Living/ Recruitment Context	Type/ Severity of Dementia	Research Design/ Methods	Quality Assessment Score (Max. = 1.0)
1.	Burgener & Barton, 1991	Formal CP (NA/PSW)	Congregate care (LTC)	Not specified	Observational. Quantitative. Direct observation of interactions between CP and PLWD	0.85
2.	Eggers et al., 2005	Formal CP (RN, Enrolled Nurses, NA/PSW)	Congregate care (LTC)	Moderate to severe impairment. Type not specified	Experimental. Qualitative. Direct observation of interactions between CP and PLWD	1.00
3.	Hammar et al., 2011	Formal CP (Assistant Nurses and NA/PSW)	Congregate care (LTC)	Severe impairment; Alzheimer's dementia and vascular Dementia	Experimental. Qualitative. Video observation of interactions between CP and PLWD	0.90
4.	Hansebo & Kihlgren, 2002	Formal CP (Enrolled Nurses, NA/PSW)	Congregate care (LTC)	Alzheimer's dementia and "other'"	Experimental. Qualitative. Video observation of interactions between CP and PLWD	0.90
5.	Kramer & Gibson, 1991	Formal CP (nursing, social work, occupational therapy, counseling)	Day program	Not specified	Experimental. Quantitative. Direct observation of interactions between CP and PLWD	**Rater 1** 0.83 **Rater 2** 1.00
6.	Langland & Panicucci, 1982	Formal CP (Nurse/ Researcher)	Congregate care (LTC)	Moderate to severe impairment. Type not specified	Experimental. Quantitative. Direct observation of interactions between researcher and PLWD	0.92
7.	Lann-Wolcott et al., 2011	Formal CP (NA/PSW, Rehab aide, Medication aides, LPN, RN, other)	Congregate care (LTC)	Moderate impairment. Type not specified	Observational. Quantitative. Video observation of interactions between CP and PLWD	**Rater 1** 0.90 **Rater 2** 0.91

	Author(s) & Year	Care Partner Description	Living/ Recruitment Context	Type/ Severity of Dementia	Research Design/ Methods	Quality Assessment Score (Max. = 1.0)
8.	Pashek & DiVenere, 2006	Researcher-Implemented	Community; Congregate care (Assisted Living Residence)	Mild to moderate impairment; Probable Alzheimer's dementia	Experimental. Quantitative. Video observation of interactions between researcher and PLWD	1.00
9.	Silvestri et al., 2004	Informal CP (relatives - relationship not further specified)	Not specified	Alzheimer's dementia	Experimental. Quantitative. Direct observation (repeated assessment of functioning of PLWD pre and post CP training intervention)	**Rater 1** 0.68 **Rater 2** 0.77
10.	Söderlund et al., 2013	Formal CP (RN, LPN, NA/PSW)	Congregate care (LTC)	Moderate to very severe. Type not specified.	Experimental. Qualitative. Video observation of interactions between CP and PLWD	0.95
11.	Strandroos & Antelius, 2017	Formal CP (professions not specified)	Congregate care (dementia care facility)	Neurodegenerative and vascular dementia	Observational. Qualitative. Direct and video observation of interactions between CP and PLWD.	1.00
12.	Williams & Parker, 2012	Informal CP (spouses)	Day program	Moderate impairment; Alzheimer's dementia	Observational. Quantitative. Video observation of interactions between CP and PLWD	0.95
13.	Williams et al., 2018	Informal CP (spouses)	Day program	Not specified	Experimental. Quantitative. Video observation of interactions between CP and PLWD	0.95
14.	Wilson et al., 2013	Formal CP (RN and NA/PSW)	Congregate care (LTC)	Moderate to severe impairment; Alzheimer's dementia	Observational. Quantitative. Video observation of interactions between CP and PLWD	1.00
15.	Wilson et al., 2012	Formal CP (RN and NA/PSW)	Congregate care (LTC)	Moderate to severe impairment; Alzheimer's dementia	Observational. Quantitative. Video observation of interactions between CP and PLWD	1.00
16.	Yury, 2011	Formal CP (Nurses, NA/PSW, Activity directors, Volunteers)	Congregate care (Personal Care Home - LTC)	Not specified	Experimental. Quantitative. Direct observation of interactions between CP and PLWD	0.77

Note. Max. = Maximum/highest possible quality score; CP = Care partner; PLWD = Persons living with dementia; LTC = Long-term Care; RN = Registered Nurses; LPN = Licensed Practical Nurses; NA/PSW = Nurses' Aides/Nursing Aides/Health Care Aides/Personal Support Workers

2.3.2.1 Participant Groups

The characteristics of the participant groups (the individuals included in interactions) were summarized. Fifty percent of the studies did not describe the cultural, racial or linguistic diversity of participants. Four studies described the race of participants (Kramer & Gibson, 1991; Langland & Panicucci, 1982; Lann-Wolcott et al., 2011; Pashek & DiVenere, 2006), and four studies identified the languages spoken by all participants (Hammar et al., 2011; Strandroos & Antelius, 2017; Williams et al., 2018; Wilson et al., 2013).

Care Partners. Most studies focused on formal care partners (n=12 studies), with the majority observing a combination of both nurses (including Registered Nurses, Licensed Practical Nurses, Enrolled Nurses and Assistant Nurses) and Nurses' Aides (including Nursing Aides, Health Care Aides, and Personal Support Workers) (n=6 studies), or only Nurses' Aides (n=1 study), and no other professions. Care partners from both nursing and professions outside of nursing were included in three studies. One study did not specify the roles of formal care partners and one study included an investigator portraying a nurse. Three studies focused on family members as care partners (e.g., spouses). In one study (Pashek & DiVenere, 2006), the researcher implemented the experimental stimuli (not a care partner). This study was deemed eligible as the intervention was intended to be a strategy for care partners.

Persons Living with Dementia. All studies included persons living with dementia. Participants living with dementia either lived with Alzheimer's dementia (n=5 studies), Alzheimer's or vascular dementia (n=1 study), Alzheimer's or 'other' dementia (n=1 study), neurodegenerative or vascular dementia (n=1 study), or their diagnosis was unspecified (n=8 studies). Four studies did not specify the type or severity of dementia, while four studies did not identify the type of dementia but indicated persons living with dementia were moderately (n=1) or moderately to severely (n=3) impaired. Five studies focused on people living with Alzheimer's dementia only (n=2 moderate to severe Alzheimer's dementia; n=1 moderate Alzheimer's dementia; n=1 mild to moderate

Alzheimer's dementia). These results show an emphasis on Alzheimer's dementia in the current literature.

The majority of participants lived in congregate settings which provided long-term care to residents (n=10), including one study where participants were recruited from both a hospital and a personal care home (Yury, 2011). In a few studies, participants lived in a residence which provided dementia-care specifically (n=1), in an assisted living residence or their personal residence (n=1), or were recruited from day programs (n=3). One study did not specify where participants lived or from where they were recruited (Silvestri et al., 2004).

2.3.2.2 Study Designs

All studies were empirical, analytical studies, with ten using an experimental design and six using an observational design. All studies collected data through observation, including video observation (n=9), direct observation (n=6), and a combination of both (n=1).

2.3.2.3 Quality Assessment

The majority of included studies were of strong quality, using the categories of strong (>0.8), good (0.7–0.8), adequate (0.5–0.7) or limited (<0.5) (Lee et al., 2008; Scott et al., 2019). Both raters assigned the same overall score to all qualitative studies (n=5). The overall scores of qualitative studies ranged from 0.9 to 1.0 (with 1.0 being the highest possible quality score). For the quantitative studies (n=11), both raters assigned the same overall score to eight studies. For the remaining three quantitative studies, discrepancies in the overall scores ranged from 0.01 to 0.17. Discrepancies reflected differences of opinion between the raters on the applicability of items to specific studies and on the assignment of "yes" versus "partial" scores to specific criteria. The overall scores of quantitative studies ranged from 0.68 to 1.0, with eight receiving a score of 0.9 or above.

Table 3: Aims and findings of included studies

	Author(s) & Year	Aim	Supportive NVC Strategies	Observed Outcome(s) of NVC Strategy for PLWD
1.	Burgener & Barton, 1991	To summarize nursing interaction approaches found to be related to behaviours of cognitively impaired, institutionalized older adults.	Gaze; Facial expression - positive; Touch - unspecified	Reduced responsive behaviour
2.	Eggers et al., 2005	To investigate interaction between caregivers and people with moderate and severe dementia well known to the caregivers to illuminate the occurrence of fragmentation and how caregivers counteract fragmentation.	Gaze; Gestures - illustrator, object; Facial expression - positive	Comprehension
3.	Hammar et al., 2011	To describe how people with dementia and their caregivers express verbal and nonverbal communication and make eye contact during morning care situations with and without a Music Therapeutic Caregiving approach.	Gaze; Gestures - object; Facial expression - positive	Successful task completion
4.	Hansebo & Kihlgren, 2002	To illuminate carers' interactions with patients suffering from severe dementia and disclose any changes in their interactions as a result of an intervention involving assessment of patients' needs and resources, and care team discussions.	Gaze; Touch; Close proximity	Conveyed a positive emotional message
5.	Kramer & Gibson, 1991	To examine the affective and social response of the cognitively impaired elderly to touch, eye contact, and verbal cues from the staff in an urban adult day center.	Gaze; Touch - unspecified	Increased expression/ engagement
6.	Langland & Panicucci, 1982	To examine the effects of touch, when used with a verbal request, in communication with elderly confused clients in a nursing home environment.	Touch	Increased expression/ engagement
7.	Lann-Wolcott et al., 2011	To assess the predictive and construct validity of the Person-Centered Behavior Inventory and the Global Behavior Scale.	Gaze; Facial expression - positive, mirroring	Reduced responsive behaviour
8.	Pashek & DiVenere, 2006	To examine the effects of rate of speech and accompanying speech with meaningful gestures on auditory comprehension in Alzheimer's dementia.	Gestures - illustrator	Successful task completion
9.	Silvestri et al., 2004	To evaluate the functional ability and reduction of psychiatric symptoms revealed in a population of patients with Alzheimer's dementia whose caregivers underwent training to learn various communication strategies to utilize with family members.	Gaze; Gestures - unspecified; Facial expression - general expressiveness; Close proximity	Reduced responsive behaviour
10.	Söderlund et al., 2013	To explore any changes in nurses' communication skills with residents with dementia disease when using the validation method	Gaze; Facial expression - mirroring; Touch; Close proximity	Conveyed a positive emotional message

	Author(s) & Year	Aim	Supportive NVC Strategies	Observed Outcome(s) of NVC Strategy for PLWD
11.	Strandroos & Antelius, 2017	To investigate care and interactional practices between residents and care staff, who are of diverse linguistic and cultural backgrounds	Gestures - illustrator, object, nodding; Facial expression - positive	Comprehension
12.	Williams & Parker, 2012	To test an observation-based measure of caregiver communication (the Verbal-Nonverbal Interaction Scale for Caregivers)	Gaze; Gestures - unspecified; Facial expression - positive; Touch; Close proximity; Frontal orientation	Fewer communication breakdowns
13.	Williams et al., 2018	To examine the feasibility and preliminary outcomes of an intervention to support married couples affected by dementia.	Gaze; Gestures - unspecified; Facial expression - positive; Touch; Close proximity; Frontal orientation	Increased expression/ engagement
14.	Wilson et al., 2013	To examine formal caregivers' use of communication strategies while assisting residents with moderate and severe Alzheimer's dementia during the completion of a basic activity of daily living	Gestures - illustrator	Successful task completion
15.	Wilson et al., 2012	To examine formal caregivers' use of task-focused communication strategies while assisting residents with moderate to severe Alzheimer's dementia during the successful completion of an activity of daily living	Gestures - object	Successful task completion
16.	Yury, 2011	To examine the potential of using noncontingent reinforcement to reduce the frequency of disruptive behaviors of three elderly persons in personal care home settings.	Gaze	Reduced responsive behaviours

Note. CP = Care partner; PLWD = Persons living with dementia

2.3.3 Observed Outcomes for Persons Living with Dementia

Diverse outcomes that indicated nonverbal strategies supported communication with persons living with dementia were observed across the 16 included studies. Six categories of outcomes were identified, with the most common including successful task completion (n=4) and reduced responsive behaviour (n=4). The remaining four outcomes included increased expression/engagement (n=3), comprehension (n=2), conveyed a positive emotional message (n=2), and fewer communication breakdowns (n=1). Descriptions of all categories are provided in Table 4.

Table 4: Observed outcomes of nonverbal communication for persons living with dementia

Outcome	Description Extracted from Studies	Quantity	Studies
Successful task completion	'getting dressed'[3]; accurate performance of a direction[8]; completed all steps of the task[14,15]	4	Hammar et al., 2011[3]; Pashek & DiVenere, 2006[8]; Wilson et al., 2013[14]; Wilson et al., 2012[15]
Reduced responsive behaviour	Related to positive resident behaviours (personally oriented, relaxed, flexible, calm and cooperative)[1]; improved behaviour disturbances[9]; decreasing disruptive behaviours[16]; negatively correlated with resistiveness to care[7]	4	Burgener & Barton, 1991[1]; Lann-Wolcott et al., 2011[7]; Silvestri et al., 2004[9]; Yury, 2011[16];
Increased expression/ engagement	Elicited affective or verbal responses from persons living with dementia[5]; increased attention (nonverbal responses)[6]; improved amount of sociable communication[13]	3	Kramer & Gibson, 1991[5]; Langland & Panicucci, 1982[6]; Williams et al., 2018[13]
Comprehension	Recognition of people, things, actions or selves[2]; create common ground and understanding[11]	2	Eggers et al., 2005[2]; Strandroos & Antelius, 2017[11]
Conveyed a positive emotional message	Promoting co-operation, communion, and showing respect[4]; showing attentiveness[10]	2	Hansebo & Kihlgren, 2002[4]; Söderlund et al., 2013[10]
Fewer communication breakdowns	A break in the conversation when the care partner either asks for clarification of a misunderstanding or proceeds with a new topic[13]	1	Williams & Parker, 2012[13]

2.3.4 Supportive Nonverbal Communication Strategies

Six categories of nonverbal communication strategies were reported in the 16 studies: 1) gaze; 2) gestures; 3) facial expression; 4) touch; 5) close proximity; and 6) frontal orientation. Further description of these categories and the outcomes by which they were observed to support communication are reported next.

Gaze. Eleven studies identified gaze or mutual gaze (eye contact), defined as an individual looking at another person or two people looking at each other (Knapp et al., 2014), as a supportive nonverbal communication strategy for all outcomes listed in Table 4. Gaze was included as an indicator within the Global Behavior Scale, which is intended to capture person-centered caregiving (Lann-Wolcott et al., 2011), as a facilitative-nonverbal behaviour in the Verbal-Nonverbal Interaction Scale for Caregivers (Williams & Parker, 2012; Williams et al., 2018), as well as a category reflecting attentive interest (Eggers et al., 2005). Hansebo and Kihlgren (2002) reported that gaze between long-term care residents living with dementia and their formal care partners was indicative of communion and a close relationship.

Gestures. The use of gestures, defined as arm, hand and head movements (Knapp et al., 2014), was reported to be a supportive nonverbal communication strategy in nine studies. Gestures were supportive for all outcomes listed in Table 4, excluding conveying a positive emotional message. Gestures were not specified in three studies but were described in the remaining six studies. Illustrators, which are defined as nonverbal acts that directly accompany speech (Knapp et al., 2014), were identified in four studies when care partners used their bodies to demonstrate or to pantomime an action or the use of an object. Pashek and Divenere (2006) found that accompanying spoken language with pantomime gestures (gestures illustrating the use of an object) facilitated comprehension in almost all participants with mild to moderate Alzheimer's dementia. Wilson et al. (2013) found a significant positive correlation between task success rate and the use of gestures demonstrating the desired action. Gestures also often accompany the use of an object. Four studies reported care partners using gestures as well as a physical object (such as showing or pointing at an object) to visually prompt the person living with

dementia. Wilson et al. (2012) reported a large positive correlation between task success rate among persons living with Alzheimer's dementia and care partners' use of pointing to an object. Strandroos and Antelius (2017) found that pointing at or showing objects were strategies used daily to create understanding between residents living with dementia and formal care staff of culturally and linguistically diverse backgrounds. They also identified nodding as a supportive nonverbal communication strategy.

Facial Expression. Nine studies identified facial expression as supportive, with seven referring to positive facial expressions displaying happiness or joy specifically, such as smiling or laughing. Two studies noted facial expressions that mirrored the emotions of the person living with dementia were supportive (e.g., laughing when person living with dementia laughed), and one study identified that facial expressiveness in general (displaying any emotion) was supportive. Facial expression was reported to be supportive for all outcomes listed in Table 4. For example, one study found that the presence of smiling among nursing assistants was related to more adaptable, relaxed, calm and cooperative behaviours among residents living with dementia (Burgener & Barton, 1991). Positive facial expressions also were included in the Global Behavior Scale (Lann-Wolcott et al., 2011), as a facilitative-nonverbal behaviour in the Verbal-Nonverbal Interaction Scale for Caregivers (Williams & Parker, 2012; Williams et al., 2018), and as an effective indicator of attentive interest (Eggers et al., 2005).

Touch. Seven studies reported touch to be supportive in producing the following among persons living with dementia: 1) reduced responsive behaviour, 2) increased expression/engagement, 3) conveyed a positive emotional message, and 4) fewer communication breakdowns. In these studies, touch occurred when care partners embraced persons living with dementia or touched and stroked persons living with dementia affectionately, such as placing a hand on their forearm. Two studies did not specify the actions demonstrated while using touch. Hansebo and Kihlgren (2002) identified the use of touch to be an integral part of nonverbal communication and an even more sensitive method of expression than verbal.

Close Proximity. Communicating within close proximity (e.g., < 1.2 metres) was identified as supportive communication strategy by authors of five studies and was associated with 1) reduced responsive behaviour, 2) increased expression/engagement, 3) conveyed a positive emotional message, and 4) fewer communication breakdowns. For example, Söderlund and colleagues (2013) recognized sitting close to the person living with dementia as an indicator of nurses developing attentiveness in their communication. Close proximity can be difficult to measure objectively; for example, while someone may not know the exact distance of their personal comfort zone, they are aware of when it has been violated (Knapp et al., 2014). However, Williams and colleagues recommended that care partners and recipients communicate within 4 feet (1.2 metres) of one another, which is equivalent to what anthropologist, Edward Hall (1959, 1966) identified as "casual-personal distance" (Knapp et al., 2014). Close proximity also was identified in the included studies as leaning forward, sitting close to/in the seat next to the person living with dementia, looking for physical contact without intruding the person living with dementia's inner area, and as a balance between intimacy and distance.

Frontal Orientation. Two studies identified frontal orientation as a supportive communication strategy (i.e., when the care partner and person living with dementia were both facing one another). Frontal orientation achieved increased expression/engagement and fewer communication breakdowns. Facing the person living with dementia was included as a facilitative-nonverbal behaviour in the Verbal-Nonverbal Interaction Scale for Caregivers, an observation tool for caregiver communication (Williams & Parker, 2012; Williams et al., 2018).

2.4 Discussion

The current scoping review yielded a comprehensive summary of reportedly supportive nonverbal strategies for care partners when they communicate with persons living with dementia. The review also identified outcomes that were observed in the current literature which indicated that nonverbal strategies support communication. A total of 16 studies were included. Findings apply only to a narrow range of types of dementia given the focus on people living with Alzheimer's dementia and under-representation of people

living with other specific types of dementia. Future research should explore the effects of nonverbal communication across various types and stages of dementia. Additionally, it is unknown whether the studies represent data from culturally, racially and linguistically diverse groups, as the majority of studies did not include descriptions of these factors which can influence how nonverbal communication is used and interpreted. This is indeed an area for future study, as Strandroos and Antelius (2017) report that there is limited research addressing communication between people living with dementia and care partners who do not share linguistic or cultural backgrounds.

Gaze, gestures, facial expression and touch were the most frequently reported supportive nonverbal communication strategies. There is modest agreement in the literature regarding supportive nonverbal strategies when communicating with persons living with dementia. Findings from the current study support, in part, those of a previous scoping review by van Manen and colleagues (2020) who identified eye contact and touch as nonverbal strategies that can improve communication with persons living with dementia. Additionally, the current review added to the literature by reporting the supportiveness of gestures, facial expressions, close proximity and frontal orientation, and by encompassing research which included formal care partners from multiple professions as well as informal care partners. The nonverbal behaviours of close proximity and frontal orientation have received the least empirical attention in the published literature thus far, suggesting further study is required. Additionally, future research should examine directly, empirically and operationally the effectiveness of nonverbal communication strategies used alone and in concert with other nonverbal and verbal strategies, and explore whether differences exist. At present, little is known about the effectiveness of using multiple nonverbal strategies simultaneously. Only two of the included studies in the current review specified whether specific nonverbal communication strategies occurred synchronously. Hammar and colleagues (2011) identified that caregivers smiled while maintaining eye contact when tasks were completed successfully, and Kramer and Gibson (1991) found that eye contact and touch (with verbal cues) elicited more social responses from participants living with dementia when used in combination than when used separately. Additionally, while all 16 included studies included both verbal and nonverbal communication, only six studies clarified when they were used together. Four

of these measured the effectiveness of nonverbal and verbal strategies used together and verbal strategies used alone (Kramer & Gibson, 1991; Langland & Panicucci, 1982; Wilson et al., 2012; Wilson et al., 2013). For example, Langland and Panicucci (1982) compared the effects of touch used with a verbal request and a verbal request made alone on the responses of persons living with dementia. Two studies (Pashek & DiVenere, 2006; Yury, 2011) only examined whether using a nonverbal strategy in combination with verbal communication was supportive. Another key finding of the current review is that there is disagreement in the literature regarding how supportive nonverbal communication is defined, evidenced by the diversity in the six outcomes which were observed in the included studies. This suggests the need for a universal definition of supportive nonverbal communication.

2.4.1 Limitations and Strengths

A limitation of this study is that it did not include communication strategies for care partners of those living with other communicative impairments, such as hearing, language or vision losses, but without cognitive impairment. Such strategies may be relevant to persons living with dementia who also experience hearing, language and vision losses. Additionally, the exclusion of studies that were not published in a peer-reviewed journal, such as dissertations or other types of grey literature, may have limited results. For example, a dissertation published by Welland (1999) investigated the impact of Amer-Ind Gestural Code on comprehension of older adults living with Alzheimer's dementia. The study found that Ameri-Ind signals facilitated comprehension among some participants. It also is possible that research on this topic which was published under different terminology or in a language other than English was not captured.

The current scoping review is the first to focus solely on studying nonverbal communication strategies for formal or family care partners of persons living with dementia. Consultation with a research librarian to develop the search strategy used in this review, as well as consultation with experts in the field of communication (MYS, JBO, LM) throughout the review process, are considered to be strengths. The decision to conduct a quality assessment provided further understanding of the existing literature and

could contribute to interpreting the reliability of findings in this research area. Inclusion of studies from peer-reviewed journals only is also a strength of this review.

2.4.2 Implications

A person-centered approach to care is emphasized for use in long-term care settings (Savundranayagam, 2014) since it denotes high quality care for persons living with dementia (Passalacqua & Harwood, 2012). Communication is essential in the provision of person-centered care (Passalacqua & Harwood, 2012; Savundranayagam, 2014; Savundranayagam et al., 2016). Furthermore, part of realizing person-centered care is embracing the role of nonverbal communication in interactions with older adults (Hubbard et al., 2002). Person-centered communication extends beyond merely supporting the communication of information to include the development and maintenance of rewarding relationships (Kitwood, 1997). Kitwood was the first to use the term "person-centered care" to distinguish an approach to care for persons living with dementia which emphasized communication and relationships (Fazio et al., 2018). Kitwood outlined a provisional list of positive interaction indicators (1997); those applicable to communication include recognition, negotiation, validation, and facilitation (Ryan et al., 2005; Savundranayagam et al., 2007; Savundranaygam, 2014). While these qualities were present in the findings of the current review reflecting outcomes showing supportive communication (e.g., conveying a positive emotional message or facilitating expression/engagement), the majority of previous literature has not addressed the supportiveness of nonverbal communication strategies using the communication-focused positive interaction indicators outlined by Kitwood. Söderlund et al. (2013) used the principle of validation to assess communication in their study evaluating validation method training. The intervention implemented by Williams et al. (2018) was based in-part on Kitwood's approach to person-centered care. However, the outcomes used to indicate supportiveness were not based on Kitwood's indicators (Williams et al., 2018). Additionally, Lann-Wolcott and colleagues (2011) defined the person-centeredness of care partners as a reduction of refusal of care by persons living with dementia, instead of using Kitwood's indicators.

Future studies should aim to build on research measuring the person-centered communication of care partners. Given the current emphasis on using a person-centered approach to care with individuals living with dementia, and Kitwood's role in defining this concept, future research should aim to define supportive nonverbal communication using the communication-focused interaction indicators outlined by Kitwood (1997).

Chapter Three aimed to address this knowledge gap. Findings of the scoping review were translated into a codebook of supportive nonverbal communication strategies, which was used to examine nonverbal communication in the following study (Chapter Three). Thus, this evidence synthesis served as a starting point to guide nonverbal strategies which could contribute to person-centered communication.

Chapter 3

3 An Analysis of Supportive Nonverbal Communication Strategies which Co-occur with Verbal Communication to Demonstrate Person-centered Interactions with Persons Living with Dementia

This chapter describes a secondary data analysis of interactions between personal support workers (PSWs) and simulated persons living with dementia, which aimed to determine whether supportive nonverbal communication strategies identified through the described scoping review (Chapter Two) co-occurred with verbal communication demonstrating person-centered indicators. PSWs play a critical role in the Canadian healthcare system, providing the majority of daily, hands-on care for persons living with dementia when a family member/friend is not the primary care partner (Public Health Agency of Canada, 2019). Therefore, it is relevant for this research to focus on the communication of care partners in a PSW role.

3.1 Background

3.1.1 Theoretical Background

Communication Accommodation Theory (Coupland et al., 1991; Giles, 2016), primarily developed by Howard Giles, describes how communicators modify their speech, language and nonverbal communication for different conversation partners with the intention of improving interactions (Ryan et al., 1995a). The Communication Predicament of Aging model (Figure 1) builds on this concept, describing a negative feedback loop in which stereotyped assumptions about older adults lead to the use of patronizing communication behaviours by their conversation partners, resulting in decreased quality of interactions and well-being among older adults (Coupland et al., 1991; Giles, 2016; Hummert et al., 2004; Ryan et al., 1986; Ryan et al., 1995a). Patronizing nonverbal behaviours can include aspects of voice, gaze, facial expressions, gestures and proxemics (Ryan et al., 1995a). Ryan and colleagues (1995a) suggested there is evidence that patronizing communication behaviours may be perceived as even more tolerable when addressed to individuals living with cognitive impairment. Thus,

people living with dementia may be at even greater risk of being subjected to the Communication Predicament of Aging model and associated consequences (Savundranayagam et al., 2007).

Conversely, the Communication Enhancement Model developed by Ellen Bouchard Ryan, Sheree Meredith, Michael MacLean and J.B. Orange (1995b) is a positive feedback loop that aims to restore balance among the determinants of communication (Orange et al., 1995). The Communication Enhancement Model, shown in Figure 3, describes a comprehensive approach to communication in which professionals utilize an expanded set of expectations and strategies to communicate with older adults living with speech, language or hearing impairments (Orange et al., 1995). This includes appropriate modification of communication by using strategies matched to the older individual's needs, including nonverbal cues (Ryan et al., 1995b). Adaptation which accommodates for individual needs empowers both the older adult and care partner, leading to optimized well-being of the older adult and maximized communication skills and opportunities (Ryan et al., 1995b).

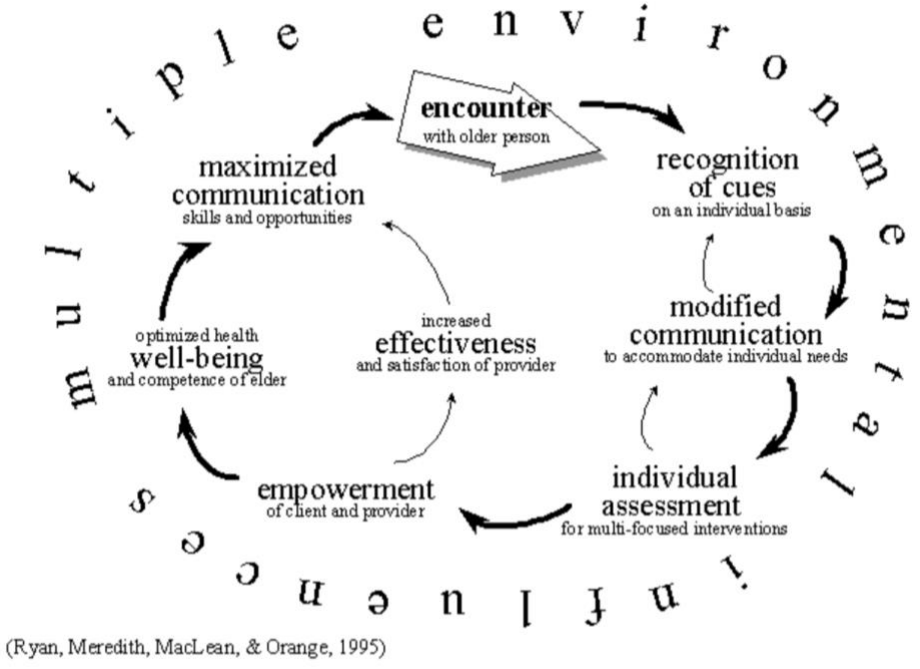

Figure 3: Communication Enhancement Model

The following research study is based on the Communication Enhancement Model. While nonverbal features of patronizing communication have been identified, it remains unclear if there are nonverbal strategies which embody person-centered communication. This is a critical knowledge gap as, although reducing the use of patronizing nonverbal features is important to a person-centered approach, the Communication Enhancement Model explains the significance of also increasing interventions based on individual assessment which can enhance communication. Therefore, this study aimed to address this gap in current evidence. Knowledge of nonverbal strategies which co-occur with person-centered communication could equip care partners with person-centered adaptations to their nonverbal behaviour which may create the positive feedback loop explained by the Communication Enhancement Model.

3.1.2 A Person-centered Approach to Communication

A person-centered approach to communication extends beyond effectively communicating information by emphasizing the development and maintenance of rewarding relationships (Kitwood, 1997). Of Tom Kitwood's positive interaction indicators (1997), previous research has identified that those most relevant to conversational interaction are 'recognition', 'negotiation', 'validation' and 'facilitation' (Ryan et al., 2005; Savundranayagam et al., 2007; Savundranayagam, 2014).

Recognition means acknowledging the person living with dementia as a unique individual, while negotiation involves consulting the person living with dementia on their preferences, desires, and needs, and giving all individuals a degree of power, for example by providing choice (Kitwood, 1997). Validation involves acknowledging and responding to the reality of the person's emotions, such as showing empathy and understanding (Kitwood, 1997). Facilitation allows a person living with dementia to do what they otherwise may not be able to by providing the missing parts of the action; this can include enabling interaction to begin, be amplified, and be meaningful (Kitwood, 1997).

3.1.3 Nonverbal Communication

A recent scoping review (Chapter Two) identified that gaze, gestures (with an object; illustrator; nodding), facial expression (positive; mirroring), touch, and body position (close proximity; frontal orientation) can reportedly support the following communication outcomes: successful task completion, reduced responsive behaviour, increased expression/engagement, comprehension, conveyed a positive emotional message, and fewer communication breakdowns. Whether these strategies are used to demonstrate recognition, negotiation, validation, and facilitation remains unclear.

3.1.3.1 Codebook Development

The current literature was hand-searched in pursuit of a tool which measured the presence of gaze, gestures, facial expression, touch, and body position in care partner behaviour; two useful tools were identified. Authors were contacted, and gave permission and access to the complete codebooks and descriptions. The Verbal and Nonverbal Interaction Scale for Caregivers (VNVIS-CG) was developed by Williams and Parker (2012) to measure care partner communication with persons living with Alzheimer's dementia. The Person-Centered Behavioural Index (PCBI) was developed by Coleman and Medvene (Grosch et al., 2008; Lann-Wolcott et al., 2011) to observe the behaviours of care partners. Both tools include several of the nonverbal strategies identified by the scoping review (Chapter Two) to be supportive for communication with persons living with dementia; however, neither tool includes all. Additionally, neither tool exclusively focuses on nonverbal behaviours, with each also including verbal behaviours. Thus, a novel coding system was developed. The "NVC (Nonverbal Communication) with Persons Living with Dementia" codebook is comprised of ten nonverbal strategies which are reportedly supportive for communication with persons living with dementia, under the five major categories of gaze, gestures, facial expression, touch and body position. The codebook, including definitions and examples, is provided in Appendix A. This observation tool has consolidated seven nonverbal strategies which overlapped between the scoping review findings (Chapter Two) and the VNVIS-CG and/or PCBI, as it has built on these measures. Comparable categories are indicated (Appendix A). The codebook also includes three categories based on the scoping review findings which did not appear in

pre-existing measures (mutual gaze, illustrative gestures, and gestures with an object), making it a unique contribution to the literature.

3.2 The Present Study

Person-centered communication has been studied in the current literature using four of Kitwood's positive person work indicators which were identified as being directly related to conversational interaction: recognition, negotiation, facilitation and validation (Ryan et al., 2005; Savundranayagam, 2014; Savundranayagam, 2015; Savundranayagam et al., 2016; Savundranayagam & Moore-Nielsen, 2015). Ryan and colleagues (2005) provided examples of how these four indicators of person-centered care could be applied to communication. The present study builds on the work of Savundranayagam and colleagues (2015), who examined language-based strategies which were effective for communication with persons with dementia as well as person-centered. However, interactions have not been coded for the co-occurrence of verbal communication and reportedly supportive nonverbal communication strategies when communication-focused indicators of person-centered care are demonstrated. This leaves a significant gap in knowledge, given that meaning is formed through the interrelation of nonverbal communication behaviours to one another and also to verbal messages (Burgoon et al., 2017; McNeill, 1985).

Therefore, this study aimed to determine whether nonverbal strategies identified to support communication with persons living with dementia in the extant literature, co-occurred with verbal communication demonstrating person-centered communication indicators. The co-occurrence between nonverbal communication strategies and person-centered communication was described to determine which nonverbal strategies may contribute to demonstrating specific person-centered messages in practice. Findings of the current study, based on the Communication Enhancement Model, could equip care partners with person-centered adaptations to their nonverbal communication which could potentially create a positive feedback loop leading to opportunities for empowerment and well-being of both persons living with dementia and care partners.

3.3 Methods

3.3.1 Data Collection and Participants

Between 2016 and 2020 video data were collected by the Caregiving Research Laboratory (within the Sam Katz Community Health and Aging Research Unit), at Western University in London, Ontario. Data collection was part of work to implement a person-centered communication intervention for PSWs. Ethics approval was granted by the Western University Health Sciences Research Ethics Board (HSREB file numbers 107789 and 114354). Approval notices are included in Appendices C and D. Participating PSWs were recruited from both long-term care and home-care settings. Baseline data which were collected prior to the communication intervention training were used for the current study. The participating PSWs were introduced to the scenario and asked to support a simulated person living with dementia during a typical morning care routine (e.g., getting dressed); no additional instruction was provided. These characteristics are significant as they contribute to capturing communication in a more natural context. Interactions occurred in a simulated environment designed as a typical bedroom. Simulated persons living with dementia were older adults who were trained to portray individuals living with middle-stage Alzheimer's dementia. These five-minute, unscripted interactions were video recorded. The videos (n=108) were transcribed and segmented into communication-units (an independent clause and its modifiers) (Salt Software, 2020) as part of a later research study to analyse the verbal communication of PSWs. Communication-units (c-units) in which care partners used verbal communication were subsequently coded for four person-centered communication indicators (recognition, negotiation, validation and facilitation). The study employed the same operational definitions used by Savundranayagam (2014) to code these four indicators. A subset of the described data was accessed for the purposes of this study.

A random sample of 37% of these videos and corresponding transcripts (n=40) were analysed, resulting in a total of 40 PSWs included. All PSWs were female except for two. This proportion accurately represents the demographic landscape in which the study took place, as 90% of PSWs in the Ontario health care sector were reported to be female in 2018 (Ministry of Long-Term Care, 2020). In total there were three male actors and one

female actor who participated in the simulations. Dyads included the combinations of a female PSW assisting a male living with dementia (n=21), a female PSW assisting a female living with dementia (n=17), and a male PSW assisting a female living with dementia (n=2). To ensure participants with experience in home-care and long-term care settings were equally represented in this study, 50% of the sample was randomly selected from the home-care recruited data set, and the other 50% was randomly selected from the long-term care recruited data set. Refer to Table 5 for additional sociodemographic information.

Table 5: Sociodemographic data

Characteristic (n=40)	
	n (%)
Sex	
Female	n=38 (95%)
Male	n=2 (5%)
Race	
Asian	n=3 (7.5%)
Black or African Canadian	n=5 (12.5%)
Hispanic	n=2 (5%)
Romanian	n=1 (2.5%)
White	n=29 (72.5%)
Recruitment Setting	
Home-care	n=20 (50%)
Long-term care	n=20 (50%)
Education	
College, [1]CEGEP, other non-university certificate	n=25 (62.5%)
Graduate degree or above	n=1 (2.5%)
Highschool diploma or equivalency	n=12 (30%)
University Bachelor's degree	n=2 (5%)
	M (*SD*, range)
Age	45.3 (11.2, 21-65)

Note. [1]CEGEP = Form of post-secondary education in Quebec

3.3.2 Data Analysis

Secondary data analysis was conducted using the NVC with Persons Living with Dementia codebook (Appendix B) to examine the videos for supportive nonverbal communication strategies used by PSWs. The primary investigator (EB) was granted

access to the uncoded written transcripts of the videos (without person-centered communication coding from previous Caregiving Research Laboratory research) as well as access to the video data.

To establish the inter-rater reliability of the coding system, a trained research assistant independently coded a randomly selected 20% of the transcripts (n=8). Disagreements between the two raters were discussed and the codes were either revised, or reported in cases where agreement was not reached. Cohen's Kappa coefficient (k) was calculated for each codebook category. Statistical values for inter-rater reliability are displayed in Table 6. The degree of agreement was determined using the following interpretation categories proposed by Landis and Koch (1997), which have been widely used in medical literature (Mabmud, 2010): very good (0.81-1), good (0.61-0.8), moderate (0.41–0.6), fair (0.21–0.4) or poor (< 0.20).

Table 6: Cohen's Kappa values for inter-rater reliability

	k
Facial Expression	0.99
Gaze	0.97
Gestures	0.97
Touch	0.98
Body Position	0.96

All 40 transcripts were coded by EB for the nonverbal communication strategies included in the NVC with Persons Living with Dementia codebook. Instances when nonverbal communication strategies were used in combination with one another were also coded. Each transcript was then compared with the corresponding transcript which had been coded for person-centered communication. The total instances of co-occurrence between c-units in which verbal communication was coded as person-centered, and nonverbal communication strategies, was examined. The body position strategy was removed upon review of the data as disproportionately high use of close proximity and frontal orientation indicated a bias toward these strategies. These results were determined to be unreliable as data collection circumstances (e.g., constrained size of the filming location) likely contributed to this bias.

3.4 Results

The total number of c-units transcribed across the 40 transcripts was 6065, with 3773 coded with nonverbal communication strategies, 1142 without nonverbal communication, and 1150 in which nonverbal communication could not be observed due to data collection circumstances (e.g., video camera angle). There were 1848 c-units in which care partners used verbal communication that were coded as person-centered, with 274 not coded as nonverbal communication and 290 in which nonverbal communication could not be observed. In total, 1284 or 69% of c-units in which person-centered verbal communication was used co-occurred with supportive nonverbal communication strategies. Of all c-units coded as recognition, 68% co-occurred with nonverbal communication strategies. Eighty percent of c-units coded as negotiation co-occurred with nonverbal communication strategies, 60% of c-units coded as validation co-occurred with nonverbal communication strategies, and 70% of c-units coded as facilitation co-occurred with nonverbal communication strategies.

3.4.1 Analysis of Co-occurrence

Findings revealed that specific nonverbal communication strategies and combinations of strategies frequently co-occurred with certain indicators of person-centered communication.

3.4.1.1 Recognition

In all c-units where nonverbal communication strategies co-occurred with recognition, gaze was the most frequently demonstrated strategy (48.9%), with care-recipient directed gaze co-occurring with 37.8% of recognition c-units and mutual gaze with 11.1%. Positive facial expressions co-occurred with 6.7% of c-units coded as recognition, including instances where PSWs mirrored the positive expressions of the person living with dementia (2.2%). The combination of gaze and positive facial expression was a co-occurring strategy in 8.9% of c-units. Touch was demonstrated minimally (2.2%) when used as an individual strategy; however, when combined with gaze, touch was used frequently, co-occurring with 24.4% of recognition c-units. All three of these strategies (the combination of gaze, positive facial expressions, and touch) co-occurred with an additional 2.2% of recognition c-units. In contrast to facilitation and negotiation, there was no co-occurrence between gestures used alone and recognition c-units. Figure 4 depicts these percentages graphically. The frequency of co-occurrence between alternative combinations of nonverbal communication strategies and recognition is shown in Appendix E.

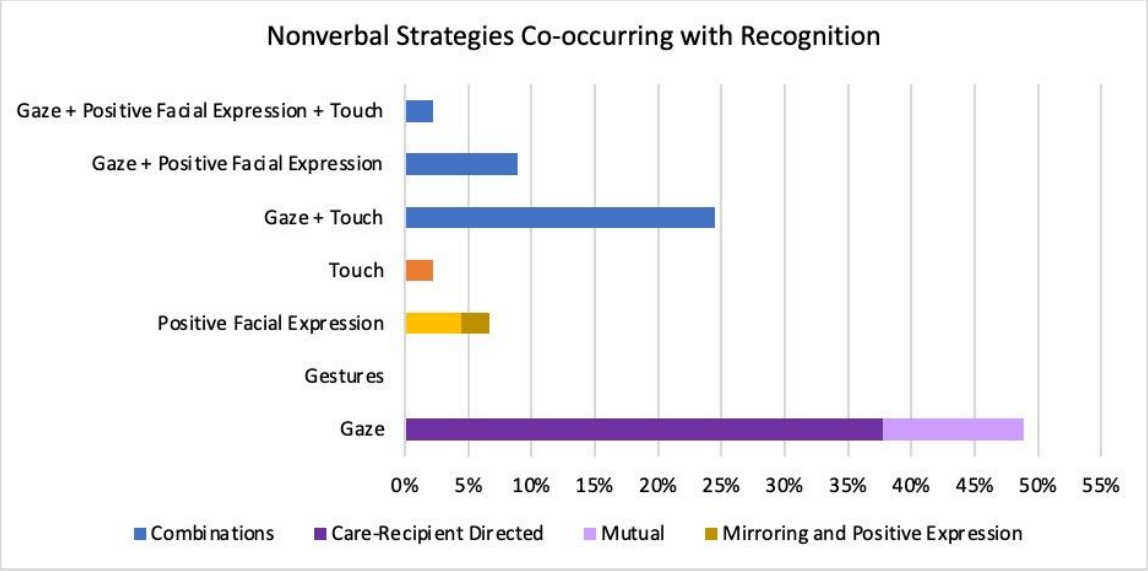

Figure 4: Nonverbal strategies co-occurring with recognition

The following example shows how care-recipient directed gaze and touch were used to demonstrate recognition. Here, the PSW looked at the client living with dementia and gently rubbed their arm to acknowledge them personally as they greeted them, leading to achieving mutual gaze.

Example 1

	Nonverbal Communication	Person-centered Communication
PSW: "Good morning Linda" [Client: lying in bed; looking up] {PSW: leaning over to look at Client's face; gently rubs Client's arm}	Care-recipient directed gaze; Touch	Recognition
PSW: "How are you?" [Client: lying in bed; mutual gaze with PSW] {PSW: leaning over to achieve mutual gaze with Client; gently rubs Client's arm}	Mutual gaze; Touch	Facilitation

3.4.1.2 Negotiation

Gaze was the most frequent strategy (41.2%) to co-occur with negotiation, with care-recipient directed gaze used in 31.4% of c-units where nonverbal communication co-occurred with negotiation, and mutual gaze achieved in 9.8%. Gestures were demonstrated in 7.5% of co-occurring negotiation c-units; specifically, gestures with an object co-occurred predominantly (7.1%). Gaze and gestures with an object were demonstrated together in 14.1% of negotiation c-units. Other nonverbal strategies co-occurred minimally when used alone, with touch used in 2% and positive facial expressions used in 1.6%. However, gaze and touch were demonstrated together in 21.6%. All three of these strategies (the combination of gaze, touch, and gestures with an object) co-occurred with an additional 1.2% of negotiation c-units. Figure 5 depicts these percentages graphically. The frequency of co-occurrence between alternative combinations of nonverbal communication strategies and negotiation is shown in Appendix E.

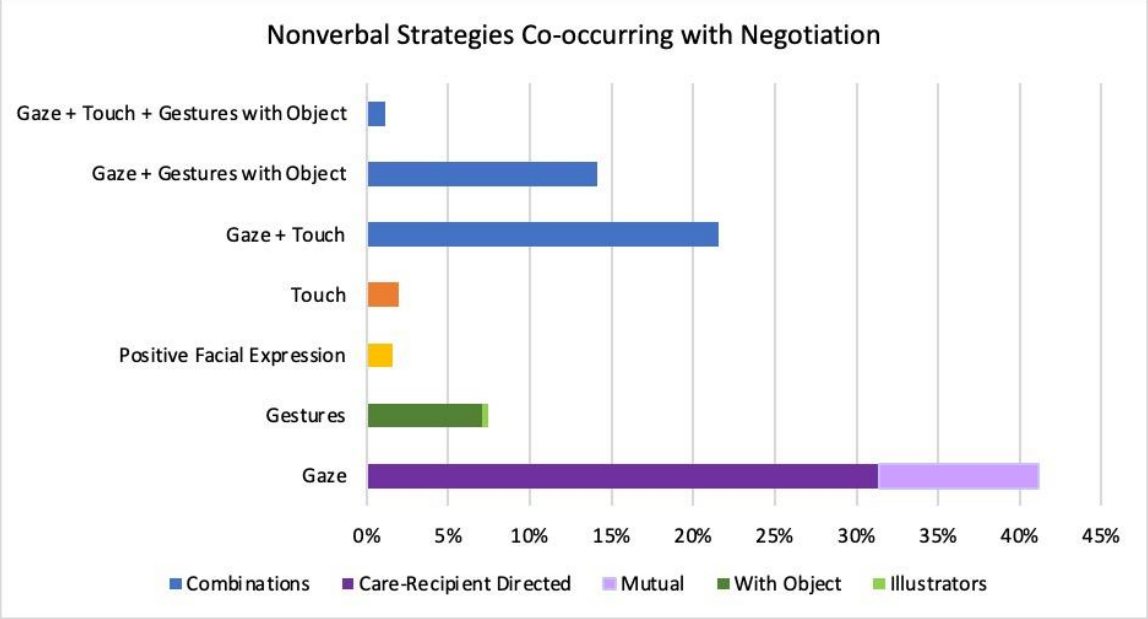

Figure 5: Nonverbal strategies co-occurring with negotiation

An example of care-recipient directed gaze and gestures with an object being used to demonstrate negotiation is presented in Example 2. The PSW looked at the client living with dementia as they gestured toward objects (shirts) to help the client to make a choice between two options, leading to increased decision-making ability of the person living with dementia.

Example 2

	Nonverbal Communication	Person-centered Communication
PSW: "Which shirt would you like?" [Client: sitting on the bed; looking at shirts hung on the door] {PSW: looking at Client's face; points between both shirts}	Care-recipient directed gaze; Gesture with object	Negotiation
Client: "I like the blue" [Client: sitting on the bed; looking at shirts hung on the door] {PSW: looking at Client's face; reaches for the blue shirt}	Care-recipient directed gaze; Gesture with object	Negotiation
PSW: "You like the blue one?" [Client: sitting on the bed; looking at shirts hung on the door] {PSW: takes the blue shirt off the hanger}	Gesture with object	

3.4.1.3 Validation

Among c-units where nonverbal communication co-occurred with validation, gaze was again the most frequently used strategy (39.5%). Care-recipient directed gaze co-occurred with 33.8% and mutual gaze with 5.7%. Touch co-occurred with 8.8% of validation c-units when used individually and 13.2% when used in combination with gaze. Positive facial expression co-occurred with 8.3% of validation c-units when used alone and, when used together with gaze, co-occurred with an additional 7.5% (2.6% mirroring positive expression). The combination of all three of these nonverbal strategies (gaze, touch, and positive facial expression) co-occurred with 0.9%. Gestures were used in 4.8% of co-occurring validation c-units; specifically, nodding was used predominantly (3.1%). Gestures with an object co-occurred with 3.1% of validation c-units when used together with gaze and positive facial expressions. Figure 6 depicts these percentages graphically. The frequency of co-occurrence between alternative combinations of nonverbal communication strategies and validation is shown in Appendix E.

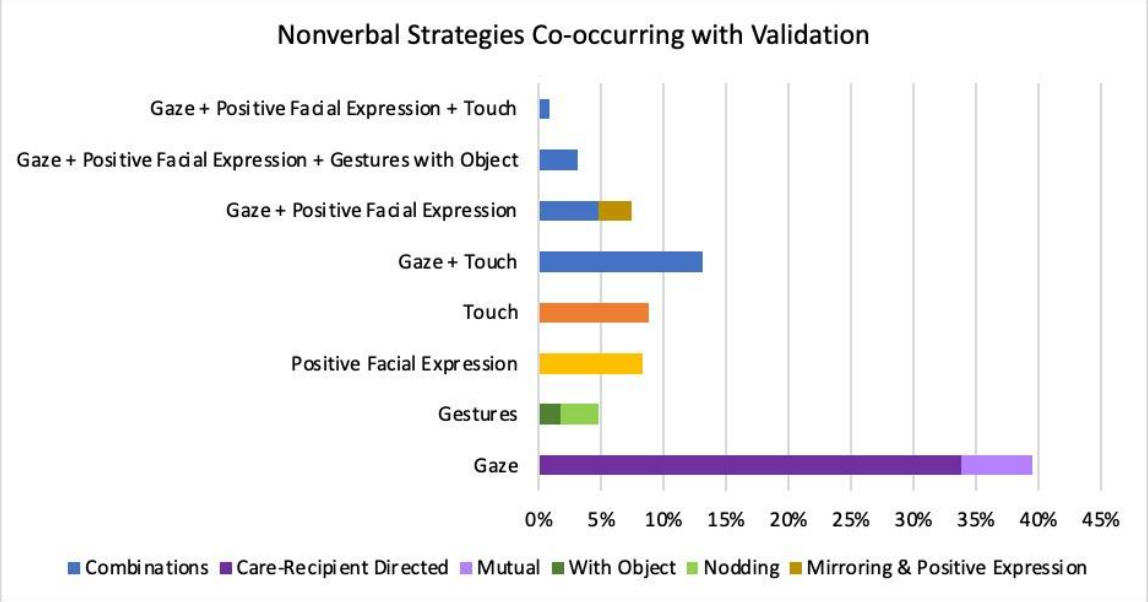

Figure 6: Nonverbal strategies co-occurring with validation

The following example shows gaze and positive facial expression being used to demonstrate validation. By laughing and looking at the client living with dementia, the PSW showed empathy and that they understood the client's experience of their physical abilities changing with age.

Example 3

	Nonverbal Communication	Person-centered Communication
Client: "These knees don't work well" [Client: attempting to sit up in bed; holding and looking at knee] {PSW: leaning over to look at Client's face}	Care-recipient directed gaze	
PSW: "Yeah it happens when we get older, doesn't it?" [Client: attempting to sit up in bed; holding and looking at knee] {PSW: leaning over to look at Client's face; laughs}	Care-recipient directed gaze; Positive facial expression	Validation
Client: "Ohhh." [Client: sitting at the edge of the bed] {PSW: standing next to Client}		

3.4.1.4 Facilitation

In c-units where nonverbal communication co-occurred with facilitation, gaze was the most frequently demonstrated strategy (43.7%), with care-recipient directed gaze co-occurring with 27.2% of facilitation c-units and mutual gaze with 16.5%. Gestures co-occurred with 10.4% of facilitation c-units. Similar to the findings for negotiation, gestures with an object were used predominantly (9.7%). Gaze and gestures with an object were demonstrated together in 7.5% of co-occurring facilitation c-units. Other individual nonverbal communication strategies co-occurred less frequently, with positive facial expressions shown in 3.3% and touch in 2.9%. However, when used in combination with gaze, touch co-occurred with 14%. The combination of all three of these nonverbal strategies (gaze, touch, and gestures with an object) was used in 1.3% of co-occurring facilitation c-units. Figure 7 depicts these percentages graphically. The frequency of co-occurrence between alternative combinations of nonverbal communication strategies and facilitation is shown in Appendix E.

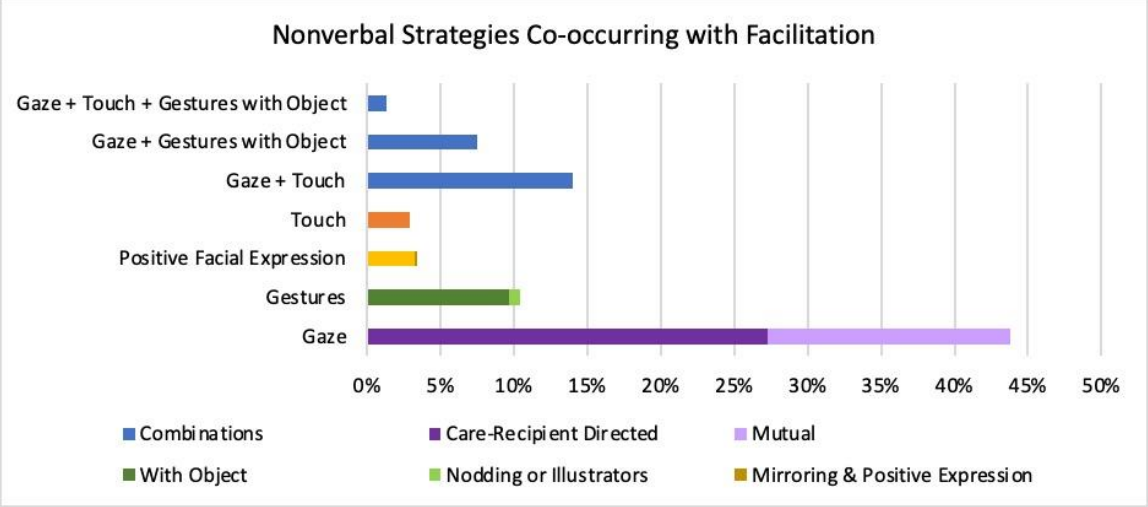

Figure 7: Nonverbal strategies co-occurring with facilitation

An example of gaze and gestures with an object being used to demonstrate facilitation is presented in Example 4. While similar nonverbal communication strategies to those displayed in Example 2 (demonstrating negotiation) were used, the gestures served to convey different messages. Here, the PSW looked at the client living with dementia and achieved mutual gaze as they used an object (washcloth) to prompt the client and facilitate the action of washing their face.

Example 4

	Nonverbal Communication	Person-centered Communication
PSW: "Here's a cloth" [Client: sitting in chair; looking at cloth in PSW's hand] {PSW: looking at Client's face; holding folded cloth out toward Client}	Care-recipient directed gaze; Gesture with object	Facilitation
PSW: "Warm cloth to wash your face" [Client: sitting in chair; looking at PSW's face] {PSW: looking at Client's face; unfolds cloth and hands to Client}	Mutual gaze; Gesture with object	Facilitation
PSW: "Do you want me to hold your glasses?" [Client: sitting in chair; looking down as they remove glasses] {PSW: looking at Client's face; holding dry cloth}	Care-recipient directed gaze	
Client: "No, no" [Client: Sitting in chair; looking down as they remove glasses] {PSW: looking at Client's face; holding dry cloth}	Care-recipient directed gaze	
PSW: "Yeah, okay" [Client: sitting in chair; looking down as they remove glasses] {PSW: looking at Client's face; holding dry cloth}	Care-recipient directed gaze	Validation

3.4.1.5 Across All Person-centered Communication Indicators

All four major categories of nonverbal communication strategies (gaze, gestures, facial expression, and touch) co-occurred with all person-centered communication indicators, with the exception of recognition. Findings also revealed specific nonverbal communication strategies which commonly co-occurred with all four person-centered communication indicators. As reported in the description of each indicator, gaze (including both care-recipient directed and mutual gaze) was the most frequently co-occurring nonverbal strategy with person-centered communication indicators. Gaze was used in between 39.5% (validation) and 48.9% (recognition) of co-occurring c-units. Mirroring facial expressions, illustrative gestures and combinations of gestures (gestures with objects and nodding; gestures with objects and illustrators; nodding and illustrators) co-occurred infrequently with all person-centered communication indicators. The combination of gaze and touch frequently co-occurred with all person-centered communication indicators, used in between 13.2% (validation) and 24.4% (recognition) of co-occurring c-units.

An example of care-recipient directed gaze and touch being used to demonstrate all four person-centered communication indicators is presented in Example 5. Here, the PSW continued to look at their client living with dementia and rub the client's back as they facilitated the actions of getting dressed and having breakfast, validated the client's feelings of fatigue, negotiated by providing them with choice, and recognized their past preferences.

Example 5

	Nonverbal Communication	Person-centered Communication
PSW: "I can help you to get dressed, have breakfast" [Client: lying in bed; eyes closed] {PSW: leaning over to look at Client's face, gently lays hand on Client's upper back}	Care-recipient directed gaze; Touch	Facilitation
PSW: "and after you can come back to bed" [Client: lying in bed; eyes closed] {PSW: leaning over to look at Client's face; rubs Client's back}	Care-recipient directed gaze; Touch	Validation
PSW: "That's a good idea?" [Client: lying in bed; eyes closed] {PSW: leaning over to look at Client's face; continues to rub Client's back}	Care-recipient directed gaze; Touch	Negotiation
Client: "Oh" [Client: lying in bed; propped up on their elbows; looking down at pillow] {PSW: leaning over to look at Client's face; rests hand on Client's back}	Care-recipient directed gaze; Touch	
PSW: "I know you like coffee" [Client: lying in bed; propped up on their elbows; looking down at pillow] {PSW: leaning over to look at Client's face; continues to rub Client's back}	Care-recipient directed gaze; Touch	Recognition

3.5 Discussion

The current study reported several supportive nonverbal communication strategies used by PSWs which co-occurred with verbal communication to demonstrate the person-centered communication indicators: recognition, negotiation, validation and facilitation. The findings of this study suggest that there were specific nonverbal communication strategies which frequently co-occurred with all four person-centered communication indicators. Additionally, some nonverbal strategies which were reported to support communication outcomes in previous literature (Chapter Two) co-occurred infrequently, including mirroring facial expressions, illustrative gestures, and combinations of gestures. The finding that gaze, both when directed toward the care-recipient only and achieved mutually, co-occurred with all person-centered indicators frequently is consistent with the current literature (e.g., Burgener & Barton, 1991; Eggers et al., 2005; Hammar et al., 2011; Hansebo & Kihlgren, 2002; Kramer & Gibson, 1991; Lann-Wolcott et al., 2011; Silvestri et al., 2004; Söderlund et al., 2013; Williams & Parker, 2012; Williams et al., 2018; Yury, 2011), as gaze was the most frequently identified supportive nonverbal communication strategy in a recent scoping review (Chapter Two). Additionally, a scoping review by van Manen and colleagues (2020) identified eye contact as a nonverbal strategy to improve communication with persons living with dementia. The combination of gaze and touch also commonly co-occurred with all person-centered communication indicators. There is modest support in the current literature for the effectiveness of this combined nonverbal strategy for communication, with a study by Kramer and Gibson (1991) identifying that accompanying verbal cues with both eye contact and touch elicited more social responses from persons living with dementia than when eye contact and touch accompanied verbal cues separately. However, few studies have examined the effectiveness of using specific combinations of nonverbal strategies synchronously, with persons living with dementia. Only two studies (Hammar et al., 2011; Kramer & Gibson, 1991) included in a recent scoping review (Chapter Two) empirically examined and clarified when multiple nonverbal strategies used by care partners co-occurred, with only Kramer and Gibson explicitly comparing the effectiveness between nonverbal strategies used in combination and separately.

Further analysis of the co-occurrence between nonverbal communication strategies and person-centered communication indicators identified several patterns unique to recognition, negotiation, validation, and facilitation, respectively (Figure 8). Gestures with an object (e.g., PSW showing or pointing at an object), both used alone and in concert with gaze, co-occurred with c-units indicating facilitation and negotiation at a high rate. However, gestures with an object did not frequently co-occur with c-units coded as recognition or validation. Conversely, positive facial expression (e.g., PSW smiling or laughing), either used alone or in combination with gaze, co-occurred with recognition or validation c-units frequently but infrequently co-occurred with facilitation or negotiation. These results suggest that gestures with objects should be used to support action-driven interaction goals, such as facilitating an interaction or negotiating a choice, and positive facial expressions should be used to support interactions aimed to provide emotional reassurance, such as recognizing individuality or validating emotions. Empirical evidence is needed to demonstrate the effectiveness of these combinations.

Although gaze appeared to be a useful strategy to communicate all person-centered communication indicators (co-occurring with the most c-units for each indicator compared to other nonverbal strategies), gaze especially co-occurred with c-units coded as recognition. This finding supports Kitwood's description of person-centered indicators, which stated that the direct contact of the eyes is one of the most profound acts of recognition (Kitwood, 2007). The co-occurrence of touch with person-centered indicators was infrequent when not combined with gaze, with the exception of validation. It could be that using touch solely is most effective as a display of empathy and validation of emotions over other person-centered messages. This suggestion is supported by Knapp and colleagues (2014), who stated that the use of touch to communicate emotional messages to older adults may be crucial, particularly if reliance on verbal messages is reduced.

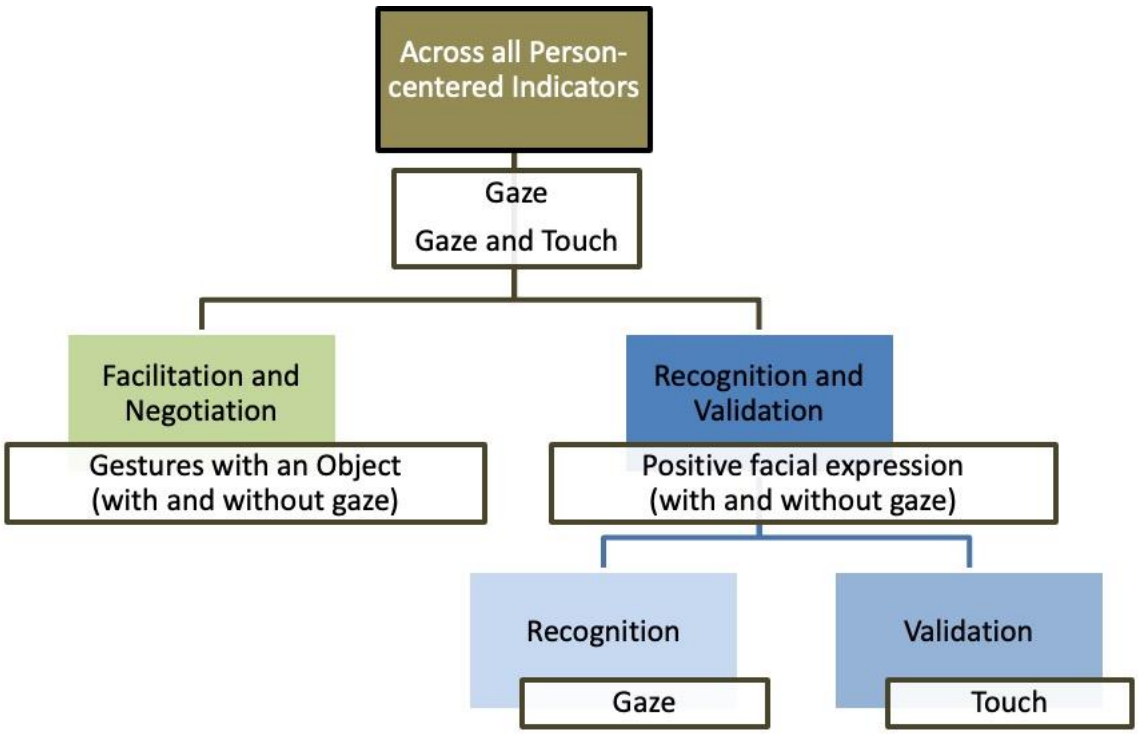

Figure 8: Nonverbal strategies co-occurring with verbal communication to demonstrate person-centered indicators

It is important to note that care partners should be aware that nonverbal strategies identified as co-occurring with person-centered communication must be used judiciously. For example, not all gestures or touch may be effective at all times, in all contexts. Person-centered communication strategies may differ from person to person due to the uniqueness of each individual and the distinctive progression of their dementia (Savundranayagam et al., 2015). For example, care partners should consider that the meanings and use of communicative gestures may vary based on culturally and linguistically diverse group membership (Cameron et al., 2020; Kontos, 2012). In addition, factors such as the nature or length of relationship, or having shared goals or interests with the care partner may influence the person living with dementia's response to nonverbal communication strategies. Although the findings of the current study suggest some nonverbal communication strategies contribute to the demonstration of person-centered communication indicators, care partners did not use supportive

nonverbal communication strategies in 15% of c-units where person-centered verbal communication was coded. These results suggest that it is possible for care partners to demonstrate person-centered communication solely through verbal communication. Also, nonverbal communication could not be observed in an additional 15% of person-centered c-units due to the limitations of secondary data analysis.

3.5.1 Limitations, Strengths, and Directions for Future Research

The completion of this work during the context of the Covid-19 pandemic made it necessary to analyse secondary data. Thus, the data collection circumstances could not be adjusted to ensure all nonverbal communication of the PSWs was captured. The nonverbal communication strategies included in the present study were not the focus of the original study for which data were collected, thus it was not ensured that these were captured. This resulted in c-units in which some nonverbal communication could not be observed. Therefore, more nonverbal communication strategies may have been used by care partners than were captured. For example, positive facial expressions may have co-occurred with more c-units than were coded due to the care partner facing away from the camera and thus being unable to observe their facial expressions. This is a limitation of the current study.

The participants in the current study consisted only of PSWs, excluding formal care partners of other healthcare professions as well as family care partners. It is possible that the nature of the relationship that the care partner has with the person living with dementia may impact their use of nonverbal communication (e.g., an occupational therapist may exhibit different nonverbal communication than a spouse). In addition, in the current study care partners did not have a pre-existing relationship with the simulated person living with dementia. It is possible that care partners may use different nonverbal communication strategies with persons living with dementia who they have built trust or a closer relationship with. Future research should build on the findings of this study to investigate how the nature, length, or quality of relationship that the care partner has with the person living with dementia may impact their use of nonverbal communication strategies to demonstrate person-centered communication. An additional limitation is that interactions were with simulated persons living with dementia and not persons who were

living with dementia in actuality. While trained actors were selected based on their familiarity with dementia and substantial expertise demonstrating consistently the common and unique features of dementia, future studies should aim to include persons who have been diagnosed with dementia to ensure authenticity.

A major strength of this study is that the recorded interactions captured communication during routine care tasks (e.g., brushing teeth, getting dressed), and prior to the person-centered communication intervention. Thus, a more realistic account of communication was provided which considered the demands and constraints of the care context. Investigating communication within care supports that care tasks can be opportunities to promote personhood, in addition to serving practical purposes (Savundranayagam et al., 2014). For example, offering two options can empower decision-making among persons living with dementia in addition to serving the purpose of helping an individual to get dressed, proving that even nonverbal behaviours related to care tasks can be opportunities to communicate a person-centered message. An area for future research is to investigate whether care partners alter their nonverbal communication behaviours situationally (e.g., using different strategies during mealtimes or leisure activities).

The current study addresses a gap in the literature by identifying nonverbal communication strategies which co-occurred with verbal communication. A recent scoping review (Chapter Two) identified that while all of the included 16 studies considered both verbal and nonverbal communication strategies, only six studies clarified when verbal and nonverbal communication co-occurred (Kramer & Gibson, 1991; Langland & Panicucci, 1982; Pashek & DiVenere, 2006; Wilson et al., 2012; Wilson et al., 2013; Yury, 2011). This is surprising given the collaboration of verbal and nonverbal features to form communication. For example, an investigation of communicative encounters between people living with dementia and care partners, who had diverse linguistic backgrounds, found that an interplay of both spoken language and nonverbal actions was necessary to attain understanding (Strandroos & Antelius, 2017). In addition, Kramer and Gibson (1991) found that using multiple communication channels (verbal and nonverbal) facilitated more responses from older adults living with cognitive impairment than when verbal cues were used alone. Separating verbal and nonverbal

behaviours is virtually impossible (Knapp et al., 2014). Therefore, this study makes a major contribution to the literature by aiming to understand how nonverbal communication strategies function together with verbal communication to demonstrate indicators of person-centered communication. It is possible that nonverbal communication could convey person-centered messages in the absence of verbal communication. However, it was beyond the scope of the current study to investigate whether nonverbal communication alone (not co-occurring with verbal communication) could demonstrate communication-focused indicators of person-centered care. This should be addressed in future studies. By measuring the co-occurrence of nonverbal strategies, and nonverbal and verbal strategies, the current study considers the complex nature of communication. This is supported as a strength by studies in which Wilson and colleagues coded utterances for multiple communication strategies (Wilson et al., 2012; Wilson et al., 2013). Results suggest that care partners should be educated about the use of more diverse nonverbal communication strategies, such as combinations of nonverbal strategies, to expand their repertoire of adaptations that could enhance communication. Indeed, Kramer and Gibson (1991) found that day program staff infrequently employed multiple communication strategies in combination, despite this being found to be the most effective approach to facilitate response. However, further research is needed as it was beyond the scope of this study to examine empirically the effectiveness of the co-occurring strategies for facilitating communication enhancement outcomes among persons living with dementia and their care partners.

Preliminary testing of the novel, NVC with Persons Living with Dementia codebook showed very good inter-rater reliability. Coding was performed by EB and a trained research assistant; therefore reliability may have been enhanced by familiarity and training. While this codebook builds on previous measurement tools, namely the VNVIS-CG (Williams & Parker, 2012) and the PCBI (Grosch et al., 2008; Lann-Wolcott et al., 2011), its exclusivity to nonverbal communication and incorporation of additional nonverbal strategies identified in previously published studies (Chapter Two) makes it a unique addition to the literature. While in need of future investigation, especially of the body position category due to its removal from the current study, preliminary use suggests the NVC with Persons Living with Dementia codebook may be a valuable and

easy-to-use tool to observe nonverbal strategies used by care partners in communication interactions with persons living with dementia.

3.6 Implications

The findings of this study provide evidence that PSWs frequently accompany verbal communication with nonverbal communication strategies in demonstrations of person-centered communication with persons living with dementia during routine care tasks. Findings also suggest that distinct nonverbal strategies may contribute to demonstrating certain indicators of person-centered communication. Findings suggest that gaze and the combination of gaze and touch may contribute to demonstrating all communication-focused indicators of person-centered care (recognition, negotiation, validation, facilitation). Gestures with an object (with or without gaze) may be useful to demonstrate facilitation and negotiation while positive facial expressions (with or without gaze) may contribute to demonstrating recognition and validation. Touch may contribute to demonstrations of validation. Future studies should build on these findings by directly and empirically examining whether the use of nonverbal strategies which co-occur with person-centered verbal communication is related to measures of well-being and improved communication skills among persons living with dementia and their care partners.

Some nonverbal communication strategies rarely or did not co-occur with verbal communication when care partners demonstrated recognition, negotiation, validation, and facilitation in the current study. This suggests that not all reportedly supportive nonverbal communication strategies in the extant literature may contribute to person-centered communication. The current study also adds to the literature by providing preliminary evidence that the novel NVC with Persons Living with Dementia codebook is a reliable and practical tool for future research which aims to observe the nonverbal behaviours of care partners in interactions with persons living with dementia.

The Communication Enhancement Model, on which this research is based, emphasizes the role of care partners in creating a positive feedback loop that empowers both interaction partners (Ryan et al., 1995a; Ryan et al., 1995b). These findings make a significant contribution to the current literature as they suggest that the use of distinct

nonverbal communication strategies may be useful to intentionally convey specific person-centered messages. Thus, these potentially beneficial strategies may equip care partners to create the communication enhancement model through their interactions with persons living with dementia.

Chapter 4

4 Conclusion

There is an increasing need to retain and support care partners given the rising prevalence of dementia worldwide. Thus, it is necessary to combat the negative impacts of poor communication evidenced by the Communication Predicament of Aging model. It is also critical that care partners increase their use of strategies which could lead to communication enhancement. Therefore, the purpose of this research was to investigate potential nonverbal communication strategies which could be used by care partners to enhance communication with persons living with dementia.

A scoping review contributed to this research area by describing nonverbal strategies for care partners which reportedly support communication with persons living with dementia in the extant literature, and the observed outcomes which indicated their supportiveness. This review is the first of its scope, according to the published literature. A subsequent study addressed knowledge gaps in the current literature by identifying nonverbal communication strategies which co-occurred with care partners' use of verbal person-centered communication. The use of person-centered communication adaptations could create the positive feedback loop described by the Communication Enhancement Model, leading to empowerment, optimized health and well-being, and maximized communication skills and opportunities among persons living with dementia and their care partners (Ryan et al., 1995a; Ryan et al., 1995b). Therefore, there is a need to educate care partners on specific nonverbal strategies which can be combined with verbal communication to convey different person-centered messages to persons living with dementia.

The scope of this research was to identify nonverbal communication strategies that could potentially result in the beneficial outcomes of the communication enhancement model among persons living with dementia, based on their co-occurrence with person-centered verbal communication. The scope of future research could be expanded to investigate how nonverbal communication strategies can support person-centered interaction with persons living with dementia who experience coinciding communicative impairments

(e.g., hearing, language and vision losses). The knowledge created through the current research should be translated into practical care settings through inclusion in person-centered communication training interventions for care partners. If implemented in practice, the findings of this research may enhance well-being and communication interactions, and support rewarding relationships between persons living with dementia and their care partners.

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Appendices

Appendix A: Quality Assessment Checklists

Checklist for assessing the quality of quantitative studies

Criteria		**YES (2)**	**PARTIAL (1)**	**NO (0)**	**N/A**
1	Question / objective sufficiently described?				
2	Study design evident and appropriate?				
3	Method of subject/comparison group selection *or* source of information/input variables described and appropriate?				
4	Subject (and comparison group, if applicable) characteristics sufficiently described?				
5	If interventional and random allocation was possible, was it described?				
6	If interventional and blinding of investigators was possible, was it reported?				
7	If interventional and blinding of subjects was possible, was it reported?				
8	Outcome and (if applicable) exposure measure(s) well defined and robust to measurement / misclassification bias? Means of assessment reported?				
9	Sample size appropriate?				
10	Analytic methods described/justified and appropriate?				
11	Some estimate of variance is reported for the main results?				
12	Controlled for confounding?				
13	Results reported in sufficient detail?				
14	Conclusions supported by the results?				

Checklist for assessing the quality of qualitative studies

Criteria		**YES (2)**	**PARTIAL (1)**	**NO (0)**
1	Question / objective sufficiently described?			
2	Study design evident and appropriate?			
3	Context for the study clear?			
4	Connection to a theoretical framework / wider body of knowledge?			

5	Sampling strategy described, relevant and justified?			
6	Data collection methods clearly described and systematic?			
7	Data analysis clearly described and systematic?			
8	Use of verification procedure(s) to establish credibility?			
9	Conclusions supported by the results?			
10	Reflexivity of the account?			

(Kmet et al., 2004)

Appendix B: Nonverbal Communication (NVC) with Persons Living with Dementia Codebook

NVC Strategy	Code	Description	Examples
[A,B] **Positive Facial Expression**[1,2,3,7,11,12,13]	FE-P	Caregiver's facial expression displaying happiness	Smiling, laughing
[A,B] **Mirroring Facial Expression**[7,10]	FE-M	Caregiver's facial expression mirrors the emotional expression of the care recipient. This category should only be coded if both communicators are displaying an emotion (e.g. both displaying flat affect should not be coded)	Laughing when the care recipient laughs, frowning when the care recipient is upset
[A,B] **Care Recipient Directed Gaze**	CRG	Attempts made by the caregiver to achieve mutual gaze by looking at the care recipient's face. Gaze **not** reciprocated by care recipient.	
Mutual Gaze [1,2,3,4,5,7,9,10,12,13,16]	MG	Caregiver and care recipient **both** look into each other's facial region	
Gesture: Illustrator[2,8,11,15]	G-I	Gesture illustrating a verbal message	Caregiver uses their body to demonstrate actions and objects that they are speaking about
[A] **Gesture: Nodding**[11]	G-N	Caregiver moves head up and down/side to side	Head nodding/shaking
Gesture + Object[2,3,11,15]	G-O	Gesture used intentionally to facilitate the use of a physical object to prompt the care recipient	Using visual aids, pointing at or showing items
[A,B] **Affective Touch**[1,4,5,6,10,12,13]	T	Physical contact between the communicators that is not necessary for completion of a task. Touch for the purpose of helping the care recipient to sit, stand, walk or balance should not be coded. If care recipient appears to react negatively to the caregiver's touch (e.g. draws back,	Hugging/embracing; placing hand on or stroking the recipient's forearm, knee, shoulder

NVC Strategy	Code	Description	Examples
		pushes away) it should not be coded.	
[B] **Frontal Orientation**[12,13]	FO	Caregiver and care recipient are facing one another	Caregiver faces/turns body toward the care recipient
[A,B] **Appropriate Proximity**[4,9,10,12,13]	P	Caregiver is close enough to allow for nonverbal communication to occur but not within intimate space. Code if caregiver is in approximately one metre of the care recipient. If care recipient appears to react negatively to the caregiver's proximity (e.g. draws back, pushes away) interpret as intimate space being breached.	Leaning forward, sitting close, sitting within 4 feet or in the seat next to the care receiver, close enough for physical contact but without intruding intimate space
Not demonstrated	[Coding cell left blank]	Do not insert any code if nonverbal communication strategy is not demonstrated by the caregiver	
Unable to observe	X	Code if a nonverbal communication strategy cannot be observed, therefore it is unclear whether or not it occurred	Caregiver's back is to the camera

*Note: The indicated categories above are similar to behaviours included in the following observation measures:

[A]Person-Centered Behaviour Index (Grosch et al., 2008; Lann-Wolcott et al., 2011);
[B]Verbal and Nonverbal Interaction Scale for Caregivers (Williams & Parker, 2012)

*Note: The indicated nonverbal communication strategies above are reported to support communication outcomes with people living with dementia by the following empirical evidence:

[1]Burgener & Barton, 1991; [2]Eggers et al., 2005; [3]Hammar et al., 2011; [4]Hansebo & Kihlgren, 2002; [5]Kramer & Gibson, 1991; [6]Langland & Panicucci, 1982; [7]Lann-Wolcott et al., 2011; [8]Pashek & DiVenere, 2006; [9]Silvestri et al., 2004; [10]Söderlund et al., 2013; [11]Strandroos & Antelius, 2017; [12]Williams & Parker, 2012; [13]Williams et al., 2018; [14]Wilson et al., 2013; [15]Wilson et al., 2012; [16]Yury, 2011

Appendix C: HSREB Ethics Approval Notice #107789

Date: 18 March 2022

To: MarieSavundranayagam

Project ID: 107789

Study Title: Enhancing person-centered communication among home care staff

Application Type: Continuing Ethics Review (CER) Form

Review Type: Delegated

Date Approval Issued: 18/Mar/2022

REB Approval Expiry Date: 23/Mar/2023

Dear Marie Savundranayagam,

The Western University Research Ethics Board has reviewed the application. This study, including all currently approved documents, has been re- approved until the expiry date noted above.

REB members involved in the research project do not participate in the review, discussion or decision.

Western University REB operates in compliance with, and is constituted in accordance with, the requirements of the Tri- Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2); the International Conference on Harmonisation Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The REB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Please do not hesitate to contact us if you have any questions.
Sincerely,
The Office of Human Research Ethics
Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix D: HSREB Ethics Approval Notice #114354

Date: 3 August 2021

To: Dr.MarieSavundranayagam

Project ID: 114354

Study Title: Be EPIC: Dementia Training for Mid-Career Workers

Application Type: Continuing Ethics Review (CER) Form

Review Type: Delegated

REB Meeting Date: 24/Aug/2021

Date Approval Issued: 03/Aug/2021

REB Approval Expiry Date: 30/Aug/2022

Dear Dr. Marie Savundranayagam,

The Western University Research Ethics Board has reviewed the application. This study, including all currently approved documents, has been re- approved until the expiry date noted above.

REB members involved in the research project do not participate in the review, discussion or decision.

Western University REB operates in compliance with, and is constituted in accordance with, the requirements of the Tri- Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2); the International Conference on Harmonisation Good Clinical Practice Consolidated Guideline (ICH GCP); Part C, Division 5 of the Food and Drug Regulations; Part 4 of the Natural Health Products Regulations; Part 3 of the Medical Devices Regulations and the provisions of the Ontario Personal Health Information Protection Act (PHIPA 2004) and its applicable regulations. The REB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000940.

Please do not hesitate to contact us if you have any questions.
Sincerely,
The Office of Human Research Ethics
Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Appendix E: Frequency of Co-occurrence Data Table

Nonverbal Communication (NVC) Strategies[2]	Communication-focused, Person-centered Care Indicators				**Row Sum**	No Co-occurrence
	Facilitation	Negotiation	Recognition	Validation		
FE-P	25	4	2	19	**50**	135
FE-M	0	0	0	0	**0**	0
FE-P; FE-M (combination)	1	0	1	0	**2**	7
CRG	206	80	17	77	**380**	930
MG	125	25	5	13	**168**	360
G-I	2	1	0	0	**3**	4
G-N	2	0	0	4	**6**	10
G-O	73	18	0	7	**98**	108
G-O; G-I (combination)	2	0	0	0	**2**	0
G-O; G-N (combination)	0	0	0	0	**0**	0
G-I; G-N (combination)	0	0	0	0	**0**	0
T	22	5	1	20	**48**	134
Combinations of Co-occurring Strategies						
CRG; G-I	6	4	0	1	**11**	6
CRG; G-I; G-N; T	0	0	0	1	**1**	0
CRG; G-I; T	1	1	0	0	**2**	2
CRG; G-N	8	2	0	2	**12**	13
CRG; G-N; T	3	0	0	2	**5**	4
CRG; G-O	46	34	1	6	**87**	63
CRG; G-O; G-I	0	0	0	1	**1**	0
CRG; G-O; G-N; T	0	0	0	0	**0**	1
CRG; G-O; T	6	2	0	0	**8**	8
CRG; T	70	41	10	27	**148**	317
FE-P; CRG	16	5	3	9	**33**	72
FE-P; CRG; G-N	3	1	0	3	**7**	3
FE-P; CRG; G-N; T	0	0	0	2	**2**	1
FE-P; CRG; G-O	6	4	0	7	**17**	24
FE-P; CRG; G-O; G-N	0	0	0	0	**0**	1

[2] FE-P=Positive Facial Expression; FE-M=Mirroring Facial Expression; CRG=Care-Recipient Directed Gaze; MG=Mutual Gaze; G-I= Gesture-Illustrator; G-N=Gesture-Nodding; G-O=Gesture with an Object; T=Touch. See Appendix B for descriptions of strategies.

Nonverbal Communication (NVC) Strategies[2]	Communication-focused, Person-centered Care Indicators				**Row Sum**	No Co-occurrence
	Facilitation	Negotiation	Recognition	Validation		
FE-P; CRG; G-O; T	0	0	0	0	**0**	1
FE-P; CRG; T	12	2	1	1	**16**	27
FE-P; FE-M; CRG	2	0	0	4	**6**	14
FE-P; FE-M; CRG; G-N	0	0	0	0	**0**	2
FE-P; FE-M; MG	1	0	0	2	**3**	2
FE-P; FE-M; MG; G-N; T	0	0	0	0	**0**	1
FE-P; FE-M; MG; T	0	0	0	0	**0**	1
FE-P; G-I; T	0	1	0	0	**1**	0
FE-P; G-N	0	0	1	0	**1**	1
FE-P; G-O	2	0	0	2	**4**	7
FE-P; MG	13	2	1	2	**18**	23
FE-P; MG; G-N	5	0	0	1	**6**	2
FE-P; MG; G-N; T	0	0	0	0	**0**	1
FE-P; MG; G-O	4	0	0	0	**4**	9
FE-P; MG; G-O; G-N	1	0	0	0	**1**	1
FE-P; MG; T	2	1	0	1	**4**	13
FE-P; T	2	0	0	0	**2**	8
G-I; T	1	0	0	0	**1**	0
G-N; T	2	0	0	1	**3**	1
G-O; T	6	1	0	2	**9**	7
MG; G-I	7	1	0	1	**9**	5
MG; G-I; T	0	0	0	0	**0**	1
MG; G-N	15	2	1	3	**21**	18
MG; G-N; T	5	1	0	3	**9**	5
MG; G-O	11	2	0	1	**14**	19
MG; G-O; G-I	1	0	0	0	**1**	0
MG; G-O; G-N	1	0	0	0	**1**	0
MG; G-O; G-N; T	0	0	0	0	**0**	1
MG; G-O; T	4	1	0	0	**5**	2
MG; T	36	14	1	3	**54**	114
Sum of Column	**756**	**255**	**45**	**228**	**1284**	**2489**
Unable to Observe NVC	155	34	16	85	**290**	860
No NVC	169	30	5	70	274	0

Curriculum Vitae

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Post-secondary Education and Degrees:	University of Waterloo Waterloo, Ontario, Canada 2015-2020 Honours, B.A. The University of Western Ontario London, Ontario, Canada 2020-2022 M.Sc.
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Related Work Experience:	Research Assistant The Schlegel-University of Waterloo Research Institute for Aging 2017-2020 Program Assistant The Ontario Centres for Learning, Research and Innovation in Long-Term Care (CLRI) 2018-2019 Teaching Assistant (Applied Health Science 9006: Healthy Aging) The University of Western Ontario 2022
Scholarly Activities:	Research Member The Sam Katz Community Health and Aging Research Unit (Caregiving Research Laboratory) The University of Western Ontario 2020-2022

Refereed Publications:

Bender, E., Savundranayagam, M., Murray, L., Orange, J. B. (2022). *Supportive strategies for nonverbal communication with persons living with dementia: A scoping review* [Manuscript submitted for publication]. Department of Health Studies, Western University.

Dupuis, K., Perkins. C., Lepp, K., & Bender, E. (2021). Intergenerational music therapy in long-term care: An interdisciplinary approach to intervention development, implementation, and evaluation. *TRPR Journal of Therapeutic Recreation Ontario*, *15,* 39-48.

Other Publications:

Dupuis, K., Lepp, K., Perkins, C., Jessop, M. & Bender, E. (2021, May). *Intergenerational Jamboree: A step-by-step guide to intergenerational music therapy in senior living.* The Research Institute for Aging. https://the-ria.ca/resources/intergenerational-jamboree/

Ontario Centre for Learning, Research and Innovation in Long-Term Care (Ontario CLRI). (2019, May 3). *Experiential learning in long-term care: A guidebook for building partnerships between secondary schools and long-term care homes*. https://clri-ltc.ca/resource/experiential-learning-in-long-term-care/

Presentations:

(Accepted) Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2022, May 26-27). *Investigating strategies for person-centered nonverbal communication with people living with dementia* [Oral presentation]. Walk With Me, National Conference (virtual).

(Accepted) Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2022, June 9-11). *A scoping review of effective strategies for nonverbal communication with people living with dementia.* [Poster presentation]. 35th Global Conference of Alzheimer's Disease International (virtual).

Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2022, February 3). *Investigating strategies to enhance nonverbal communication with people living with dementia* [Poster presentation]. Health and Rehabilitation Sciences Graduate Research Conference, Western University (virtual).

Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2021, October 22). *Investigating effective strategies for nonverbal communication with people living with dementia: A scoping review* [Oral presentation]. Annual meeting of the Canadian Association on Gerontology (virtual).

Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2021, October 21). *Investigating effective strategies for nonverbal communication with people living with dementia: A scoping review* [Poster presentation]. Annual meeting of the Canadian Association on Gerontology (virtual).

Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2021, May 11). *Person-centered, nonverbal communication with people living with dementia* [Oral presentation]. London Health Research Day, Western University (virtual).

Bender, E. N., Savundranayagam, M.Y., Murray, L. Orange, J.B. (2021, February 3). *Rethink: Person-centered, nonverbal communication with people living with dementia* [Oral presentation]. Health and Rehabilitation Sciences Graduate Research Conference, Western University (virtual).

Bender, E. & Mitchell, S. (2018, November 14). *Ontario CLRI's: Innovative approaches to support an engaged workforce* [Oral presentation by the Ontario CLRI]. This is Long-Term Care (Ontario Long-Term Care Association), Toronto, ON.