ELDERSPEAK: HELPFUL OR HARMFUL?

A SYSTEMATIC REVIEW OF SPEECH TO ELDERLY ADULTS

by

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Abstract

Elderspeak, an over-accommodation used in communicating with older adults, has both verbal and nonverbal features. To many its use suggests a lack of respect toward the older adult. A systematic review of 28 studies was conducted to analyze the evidence as to the features of elderspeak and its intended accommodation/benefit versus its potentially negative/harmful effect on both sender and recipient. The quality and validity of each source was assessed using a modified checklist created by combining aspects of the checklists provided by the Scottish Intercollegiate Guideline Network (SIGN) for systematic reviews and meta-analyses, randomized controlled trials, and cohort studies and the SIGN checklist for systematic reviews and meta-analyses was used for one systematic review. The results found that elderspeak is a multi-cultural and interdisciplinary phenomenon that consists of various features that may or may not be used by a speaker. In addition, it has both beneficial and harmful consequences, as seen by its ability to improve the comprehension of elderly adults, while at the same time often being negatively rated and perceived by young and elderly alike. Repetitions, elaborations, and simple sentences can help older adults remember information better and follow directions, but speakers should be particularly careful about using a high, widely varying pitch.

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Chapter 1

Introduction

The baby-boomer generation is quickly aging, causing the number of senior citizens—those over the age of 65—to increase rapidly. According to the Administration on Aging (2011), there were 39.6 million older adults in the United States in 2009. By 2030, this number is expected to reach 72.1 million, with senior citizens accounting for 19% of the population (Administration on Aging, 2011).

Research has shown that younger people tend to have negative stereotypes about older adults (Hummert, Mazloff, & Henry, 1999) and that ageism is common in many aspects of life, such as retail (Ryan, Anas, & Gruneir, 2006), the media (Harwood, 2000), and chance encounters (Harwood, Ryan, Giles, & Tysoski, 1997). Elderly people are often seen as "inflexible, lonely, religious, unproductive, sickly, depressing, senile, frail, and lacking in energy" (as cited in Nussbaum et al., 2005, p. 288).

These stereotypes can have negative effects on the communication between younger and older people. Younger people begin to base their communication on the stereotypes they have about older people, instead of on the older people's actual abilities (Ryan, Giles, Bartolucci, & Henwood, 1986; Ryan, Hummert, & Boich, 1995; Shadden & Toner, 2011). The negative beliefs about older adults can cause others to attempt to over-accommodate for what they believe are deficits. Because of the negative biases people often have about older people, elderspeak is one way in which people attempt to over-accommodate when communicating with the elderly (Shadden & Toner, 2011).

Elderspeak, speech used with older adults, resembles speech used with children (Caporael, 1981). It is characterized by slower speech, exaggerated intonation, higher pitch, increased loudness, repetitions, tag questions, and vocabulary and grammar

simplifications (Shadden & Toner, 2011). Elderspeak is perceived by older people to be patronizing, and can lead to greater dependency because the older adults are made to feel as though they are more impaired and incapable than they actually are (Ryan et al., 1986; Ryan, et al., 1995; Shadden & Toner, 2011). There are also features of elderspeak that have been shown to enhance communication with older adults and improve the comprehension of adults with dementia (Cohen & Faulkner, 1986; Kemper, Anagnopoulos, Lyons, & Heberlein, 1994; Kemper & Harden, 1999; Shadden & Toner, 2011).

In spite of the research that has been done on the effects of elderspeak, there does not seem to be a consensus on whether elderspeak is beneficial or detrimental. For example, the Alzheimer's Association (2011) suggests that people speak slowly when communicating with older adults with dementia, but studies have shown that speaking slowly does not improve the comprehension of the older adults (Small, Kemper, & Lyons, 1997; Kemper & Harden, 1999). With the number of elderly adults rapidly increasing, it is important the professionals in the health care field know the most effective ways to communicate as well as what to avoid when speaking to older adults. A systemic review of the literature would be useful to determine the key features of elderspeak and to clarify the question, "Is elderspeak helpful or harmful?"

Much research has been done studying the communication between nurses and their patients (Ashburn & Gordan, 1981; Caporael, 1981; Edwards & Noller; 1993; Touhy, 2002; Williams, Kemper, & Hummert, 2003; Williams, Herman, Gajweski, & Wilson, 2009). Not only is it important for nurses to know which features of elderspeak, if any, are potentially harmful to older adults in order to avoid using them, but speech-

language pathologists can also benefit from such knowledge when treating older patients with strokes, dementia, and dysphagia, and when educating others about effective communication strategies among older populations.

Chapter 2

Literature Review

What is Elderspeak?

In 1964, Ferguson described what he called a secondary use of baby talk when it is not used with babies, but instead with adults or even animals. In fact, Caporael (1981) suggests that there is no paralinguistic difference between the baby talk used with children and the baby talk used with adults. Ashburn and Gordan (1981) found similar results when analyzing the speech addressed to residents of a rest home. The speech used when talking to the residents had a simplified register that is also used with babies and children acquiring language. It was less complex, shorter, more redundant, and had more interrogatives and imperatives than speech typically used with adults. Elderspeak, as coined by Cohen and Faulkner (1986), is similar to the language that adults use with children. Elderspeak is also known as secondary baby talk (Caporael, Lukaszewski, & Culbertson, 1983) or patronizing communication (Ryan et al., 1995).

Ryan et al. (1986) first described what they called the *communication predicament of aging*. According to this model, there is a difference between how the elderly's communicative abilities are perceived and what their actual abilities are. The elderly are not spoken to in a manner that corresponds with their actual communicative abilities, but in a way that suggests they are not as competent as they are (Ryan et al., 1986). As a result, elderspeak occurs when people change the way they talk to an older person based on their perceptions of older people, instead of based on the older person's actual abilities (Ryan et al., 1986; Shadden & Toner, 2011). Used with both older adults who have neurologic impairments such as Alzheimer's disease and older adults with

normal cognitive abilities (Golinkoff & Hirsch-Pasek, 2006), elderspeak includes both verbal and nonverbal features (Ryan et al., 1995). The verbal characteristics of elderspeak include exaggerated intonation patterns, higher pitch, (Caporael, 1981) simpler vocabulary and grammar (Culbertson & Caporael, 1983; Kemper, 1994), reduced length of utterance, frequent repetitions, slower speaking rate, (Kemper, 1994), terms of endearment, and tag questions, (Shadden & Toner, 2011) such as "You want a bath, don't you?"

In addition to the verbal features associated with elderspeak, nonverbal behaviors are prominent, as well (Ryan et al., 1995). Such characteristics of elderspeak have been summarized by Ryan et al. (1995) to include gaze, such as a lack of eye contact, eye rolls, or winking; proxemics, such as standing too close to a person or standing over a person who is sitting or lying in bed; facial expressions and gestures, such as frowns, exaggerated smiles, head shakes, shoulder shrugs, hands on hips or crossed arms; and touch, such as patting the older person's head, hand, arm, or shoulder. Research shows that positive nonverbal behaviors, such as eye contact, smiling, nodding, crouching to be at the same level as the older person, holding hands, and gentle movements, are less likely to be used by people who use patronizing speech (Ryan, MacLean, & Orange, 1994).

There are four types of talk described by Ryan et al. (1986) that are used toward older adults and can affect the communication between younger and older people. The first type of talk is "over-accommodation due to physical/sensory handicaps" (Ryan et al., 1986, p. 8). A person who sees that an older adult has a physical, vision, or hearing impairment might adjust their speech to accommodate for that impairment. A person

shouting at an older adult who has a hearing impairment is a common example of this type of speech (Ryan et al., 1986). Over-accommodation due to a handicap is often heard whether or not the older person has a handicap. Incorrectly assuming an older person has a handicap may be caused by stereotypes the speaker has about the elderly (Ryan et al., 1986).

The second type of talk described by Ryan et al. (1986) is "dependency-related over-accommodation" (p. 8). In this type of communication, elderly people are seen as dependent and therefore believed to be unable to make their own decisions. The caregiver's speech is described as being "over-bearing" (Ryan et al., 1986, p. 8). Dependency-related over-accommodation can also undermine the abilities of the older adult by allowing the caregiver to take control of the older adult's life (Ryan et al., 1986).

"Inter-group over-accommodation" is the third type of speech described by Ryan et al. (1986, p. 9) in which younger people view elderly people as a part of a homogenous group. According to this accommodation style, younger adults will modify their speech to older adults simply because the person is part of the elderly "group." These modifications are often based on the stereotypes younger people have formed about the elderly in general. The stereotypes do not always coincide with the actual needs of the older adult, but rather what the person perceives to be the needs of older adults (Ryan et al., 1986).

The last type of talk is known as "age-related divergence" (Ryan et al., 1986, p. 11). It occurs when young people who want to differentiate themselves from the older people use language that is considered "young." Examples of this speech include using slang, discussing topics that are of interest to young people, and showing little interest in what older people have to say (Ryan et al., 1991).

Elderspeak and Language Changes of the Elderly

Shadden (2011a), in the textbook *Aging and Communication,* discusses the effects of aging on language. Older adults often experience communication problems as a result of other changes that occur as they grow older, such as hearing loss and altered voice quality. Changes in language that occur as a result of aging, called primary aging, are sometimes difficult to detect and do not necessarily affect the person's life (Ryan et al., 1986; Shadden, 2011a). Primary aging changes in language can include using less imagery, elaboration, and organization; difficulty with word finding; using fewer word categories; having more tip-of-the-tongue and slip-of-the-tongue errors; more difficulty processing complex sentences; using shorter utterances; and producing more errors in complex syntax (Shadden, 2011a). Since these changes often go unnoticed, elderspeak to older adults can be triggered by other age-related factors or stereotypes, such as gray hair, wrinkles, or using a walker (Ryan et al., 1986; Shadden & Toner, 2011).

In addition to primary aging factors, Shadden (2011b) also discusses that the elderly are susceptible to secondary aging factors, or pathological conditions that can negatively affect their language abilities. Some disorders she describes include cognitive-communication disorders which can be caused by dementia, stroke, and traumatic brain damage. These disorders affect the cognitive abilities that are necessary for communication, including memory, executive function, and attention (Shadden, 2011b). Language impairments can also occur from damage to the areas of the brain responsible for language and their connection to other areas of the brain (Shadden, 2011b). Aphasia is the language disorder most commonly found in older adults that can affect all of the modalities of language, including comprehension, production, reading, and writing

(Shadden, 2011b). In adults with neurological language impairments and even adults with normal language, there are certain features of elderspeak that may be helpful in improving communication (Cohen & Faulkner, 1986; Kemper et al., 1994; Kemper & Harden, 1999; Shadden & Toner, 2011).

What are the effects of elderspeak?

Even though healthcare workers often use elderspeak in an attempt to help older adults understand what is being said, it can actually have the opposite effect. Using shorter sentence lengths, speaking slowly and at a higher pitch have been shown to not be helpful in improving the older adults' comprehension and can actually cause more communication problems (Kemper & Harden, 1999).

Not only can elderspeak hinder communication, it also suggests a lack of respect toward the older person (Ryan et al., 1995). The use of over-accommodating speech can also have negative consequences for older adults, who, according to Ryan et al. (1986), often tolerate elderspeak despite their hatred of it. For many elderly people in nursing homes, interacting with the nursing home staff is the only social interaction they have (Williams, Kemper, & Hummer, 2003), but patronizing speech can cause the elderly to become more isolated (Ryan et al., 1986). Elderly people who are the targets of patronizing speech may begin to avoid speaking to younger people because they feel as though they are not understood or respected (Ryan et al., 1995). They might, in fact, look elsewhere, such as television, for social interaction instead of interacting with other people (Ryan et al., 1986). Elderspeak can also cause the older person's self-esteem to decline, as well as reinforce negative ageist behaviors, such as making the older person more dependent on the younger person (Ryan et al., 1986; Ryan, et al., 1995). Adults

who have no cognitive problems are also made to feel as though they are less competent when they are talked to with elderspeak (Shadden & Toner, 2011).

Elderspeak has been shown to negatively affect how both the person using it and the person receiving it are perceived (Ryan, Bourhis, & Knops, 1991; Balsis & Carpenter, 2006). People who use elderspeak are often viewed as "less intelligence, competent, confident, friendly, helpful, trustworthy, alert, and strong" (Ryan et al., 1991, p. 445), as well as being "disrespectful, patronizing, unprofessional, angry, frustrated, [and] dislikeable" (Balsis & Carpenter, 2006, p. 90). People who are the targets of elderspeak are perceived as incompetent, incapable, and having poor memory and communication skills (Balsis & Carpenter, 2006), as well as being more frustrated (Ryan et al., 1991). The age and relationship of the speaker and target do not affect how people view those who use and are the targets of elderspeak (Balsis & Carpenter, 2006). Personal biases also do not change the negative perceptions of the targets of elderspeak. The elderly are still associated with the negative characteristics even if the observer regards older people positively (Balsis & Carpenter, 2006).

Recent research has shown that elderspeak can also lead to what is called *resistiveness to care* (RTC) in patients with dementia (Cunningham & Williams, 2007; Williams et al., 2009). RTC refers to behaviors that can disrupt the performance of Activities of Daily Living (ADLs). It is measured on a scale that assesses 13 behaviors including pushing away, *gegenhalten*, (body movements of equal force but away from the caregiver), grabbing the caregiver, pulling away, turning away, screaming, threatening, saying no, crying, clenching mouth, adducting limbs, hitting/kicking, and grabbing an object (Mahoney et al., 1999). RTC is much more likely to occur when healthcare

workers use elderspeak than normal speech, and it is also more likely to occur when elderspeak is used than when the healthcare worker does not speak at all (Williams et al, 2009).

While speech-language pathologists, nurses, and other healthcare workers are professionals who frequently interact with the elderly and need to be able to recognize the use of elderspeak and its potentially detrimental effects in the healthcare setting, it is also important to note that the use of elderspeak is not limited to hospitals and nursing facilities. Studies have developed hypothetical situations to study overaccommodating speech styles in everyday settings, such as retail stores, (Ryan, Ana, & Gruneir, 2006) and in chance encounters, such as car accidents (Harwood et al., 1997). In these settings, the overaccommodating speech is also regarded negatively, as is the person who uses it (Harwood et al., 1997; Ryan et al., 2006).

What are the benefits of elderspeak?

With some research suggesting elderspeak is harmful and that people who use it and are the targets of it are perceived negatively, it would seem that there might not be beneficial elements. There are studies, however, that have shown how certain aspects of elderspeak can help improve communication with the elderly (Cohen & Faulkner, 1986; Kemper et al., 1994; Small et al., 1997; Kemper & Harden, 1999) without being patronizing (Cohen & Faulkner, 1986; Kemper & Harden, 1999). Comprehension can be improved by using fewer subordinate and embedded clauses and using semantic elaborations (Kemper & Harden, 1999). Stress on key words can also enhance the comprehension of older adults without being patronizing (Cohen & Faulkner, 1986). In addition, decreasing syntactic and semantic complexity can be helpful when

communicating with people with dementia or Alzheimer's disease (Kemper et al., 1994; Small et al., 1997).

Improving Communication with Elderly Adults

A study of caregivers' speech in a nursing home reported that more than 22% of their sentences were classified as "baby talk" (Caporael, 1981). Even though elderspeak is used so frequently, most caregivers are unaware they are using it and do not understand its negative consequences (Talerico, 2005), nor do they have any training or knowledge about communicating with the elderly (Grant, Pothoff, Ryden, & Kane, 1998). Caregivers even assume elderly people like elderspeak and that using normal adult speech will not allow for effective communication with the elderly (Caporael et al., 1983). Drawing caregivers' attention to their use of elderspeak and its detrimental effects can allow caregivers to reduce their use of elderspeak (Williams et al., 2003; Talerico, 2005). After three one-hour communication-training interventions, nurses in five nursing homes used fewer diminutives and terms of endearment, fewer collective pronouns referring to an individual person, and fewer shortened sentences (Williams et al., 2003). After the intervention, the nurses' speech was also perceived as "less controlling and more respectful" (Williams et al., 2003, p. 242).

Evidence-Based Practice

One method of determining the positive and negative features of elderspeak is to synthesize the data available. By using evidence-based practice (EBP), professionals could identify if there is sufficient evidence to suggest the potential harm or effectiveness of elderspeak. EBP is becoming more prominent in speech-language pathology and other healthcare fields (Cox, 2005). In 2005, the American Speech-Language Hearing

Association (ASHA) issued a statement that said speech-language pathologists and audiologists should incorporate EBP into their practices (ASHA, 2005). According to this statement, EBP allows for the clinician to make clinical decisions by incorporating current research, the clinician's expertise, and the client's preferences, values, culture, and environment. By utilizing EBP, the clinician is able to obtain the knowledge and skills needed to provide quality services by integrating new research into their practice; determine the most cost-effective and useful prevention, screening, and diagnostic methods; and evaluate the quality of new research before using the information (ASHA, 2005).

EBP is comprised of five steps including (Cox, 2005):

1) Develop a specific clinical question that is able to be answered,
2) Gather high-quality research,
3) Assess the validity and significance of the research,
4) Incorporate research, clinical knowledge, and patient variables, such as preferences, values, culture, and environment (ASHA, n.d. b) in order to make a recommendation,
5) Assess the results and find ways to improve.

These steps, especially finding and evaluating research, can be time-consuming, causing some clinicians to feel EBP is not practical (Cox, 2005). To help combat this problem, a systematic review would make it possible to have all of the relevant research available in one document, and allow the clinician to have easy access to the research when making clinical decisions (ASHA, n.d. a).

Systematic Review

A systematic review is a "means of identifying, evaluating and interpreting all available research relevant to a particular research question, topic area, or phenomenon of interest" (Kitchenham, 2004, p. 1). Systematic reviews are helpful for displaying the effects of a phenomenon of interest across a variety of settings and research methods, as well allowing for the combination of data by using meta-analysis (Kitchenham, 2004).

A systematic review can be divided into three stages: planning, conducting, and reporting the review (Kitchenham, 2004). The steps for conducting a systematic review are as follows (Kitchenham, 2004):

A) Define the research question

B) Create a review protocol:

   a. Strategy to find primary sources

   b. Selection and application of inclusion and exclusion criteria

   c. Development of quality assessment procedures to assess studies

   d. Data extraction method

   e. Data synthesis

   f. Result interpretation and presentation

Justification for Research

The Alzheimer's Association (2011) suggests that when talking to people with dementia the speaker speak slowly, use a lower pitch, repeat information if necessary, use simple words and sentences, and emphasize key words. Research shows that the suggestions to repeat information, use simple sentence, and emphasize key words can aid a person's comprehension (Cohen and Faulkner, 1986; Kemper et al., 1994; Kemper &

Harden, 1999) while not being patronizing or demeaning like other aspects of elderspeak, such as terms of endearment and exaggerated intonation (Ryan et al., 1986; Ryan, et al., 1995; Harwood et al., 1997; Balsis & Carpenter, 2006; Ryan, Anas, and Gruneir, 2006; Shadden & Toner, 2011). The suggestion to use a slower rate of speech, however, may not be effective in enhancing communication (Small et al., 1997; Kemper & Harden, 1999).

Based on the previous literature review, it is clear that elderspeak is a term that encompasses several characteristics of speech to older adults. However, as seen by the differences in the Alzheimer's Association's suggestions and research, what is not clear is which features of elderspeak are effective in enhancing communication and which are detrimental to communication with older adults. With such a large percentage of communication between nurses and patients consisting of elderspeak (Caporael, 1981), it is important to know exactly how elderspeak influences communication. A systematic review of the literature regarding elderspeak could gather evidence that would identify the key features of elderspeak and clarify the question, "Is it helpful or harmful?"

Chapter 3

Methodology

Developing a question that will be answered by the review is the first step of a systematic review (Kitchenham, 2004). Creating a research question is not always easy and may take some time (Australian National Health and Medical Research Council, 2000). The PICO format can be helpful in developing a relevant question (SIGN, 2011). The components of PICO include *Population/Patient, Intervention, Comparison,* and *Outcomes* (SIGN, 2011). Following this model, the question should identify the patients or populations that will be covered by the literature search, the age groups that will be covered, whether a specific group or population will be given special consideration in the literature search, and if any population will be excluded from the search (SIGN, 2011). The question should also include the intervention (i.e. a subjective or physiological measure of change such as satisfaction or blood pressure) that is being studied in regards to the patients (SIGN, 2011). The population being studied should be compared to a group who has not received the intervention, such as a placebo group or a group who received an alternative form of intervention (SIGN, 2011). Finally, the question should identify the outcomes that will be used to determine the extent to which the intervention affects the population (SIGN, 2011). Outcomes should be important to both patients and clinicians and be objective (SIGN, 2011). Creating a research question that includes all four parts of PICO will help to ensure that the evidence found will be relevant to the clinician (ASHA, n.d. c). Using the PICO format, this study answered the question, *Are the features of elderspeak beneficial or detrimental when used with older adults?*

After creating the research question, the next step is to develop a protocol of review, the first part of which is to develop a search strategy to find all available relevant sources (Kitchenham, 2004). Consulting with librarians and experts in the field can be helpful in finding as many sources as possible (Kitchenham, 2004). Because systematic reviews utilize all of the available evidence related to the research question, both published and unpublished work should be included in the search (Australian National Health and Medical Research Council, 2000). In order to find all of the sources available, it is important that the researcher search in places other than electronic databases, such as the reference lists of studies, grey literature (i.e. technical reports and works in progress), and conference proceedings (Kitchenham, 2004). In addition, because systematic reviews should include the best evidence available, a thorough search of the sources at the top of the hierarchy of studies should be conducted (SIGN, 2011). SIGN (2011) also provides search filters that will identify systematic reviews, randomized controlled trials, observational studies, diagnostic studies, and economic studies. The researcher can search for sources by breaking down the question into its separate parts, such as population, intervention, comparison, and outcomes; searching for synonyms, abbreviations, and alternative spellings; identifying subject headings and keywords from journal articles; and creating Boolean search strings using "and" and "or" (Kitchenham, 2004).

As suggested by Kitchenham (2004), subject specialists were consulted for research advice. Toni Carter, subject specialist in Communication Disorders at Auburn University Ralph Brown Draughon Library, provided information on databases. CINAHL, ERIC, LLBA, PSYCINFO, Medline, Science Direct, Web of Science, and

Communication Abstracts were suggested to search in order to gather sources from different areas (T. Carter, personal communication, March 30, 2012). Dr. Robin Sabino, associate professor in English at Auburn University with an interest in language use and language accommodations made across the lifespan, also provided information about the LLBA database and keywords to include in the primary resource search (R. Sabino, personal communication, February 3, 2012).

The Cumulative Index to Nursing and Allied Health Literature (CINAHL) database provides journals related to the field of nursing and allied health. Ranging from 1981 to the present, CINAHL provides more than 2.6 million records from over 3,000 journals, covering such fields as nursing, biomedicine, alternative/complementary medicine and consumer health. Other resources, such as health care books, nursing dissertations, and conference proceedings, are available on the CINAHL database (EBSCO Publishing, 2012).

Beginning in 1966, the Educational Resources Information Center (ERIC) began indexing documents and began indexing journal articles in 1960. Today, the database contains more than 1.4 million records and 1,166 journals (Educational Resources Information Center, n.d. c). ERIC provides access to such resources as journal articles, books, conference papers, research syntheses, technical reports, and other materials for educational purposes (Education Resources Information Center, n.d. a). The Institute of Education Sciences, a part of the U.S Department of Education sponsors ERIC (Education Resources Information Center, n.d. c).

The CSA Linguistics and Language Behavior Abstracts (LLBA) provides records dating back to 1973 related to linguistics and all aspects of language. Over 479,505

records and abstracts from more than 1,500 publications are available on the database. The resources indexed on the database include books, book chapters and reviews, dissertations, film and software reviews, and journal articles (ProQuest, 2011).

The PsycINFO database has more than 3 million records from journals, books, and dissertations related to behavioral sciences and mental health. The majority (99%) of the journals are peer-reviewed. PsycINFO provides coverage of resources dating back to 1597 and a thorough coverage of resources from the 1880s to the present. Subjects related to psychology, such as medicine, law, social work, neuroscience, business, nursing, forensics, engineering, and others are included in the PsycINFO database (American Psychological Association, 2012).

MEDLINE provides coverage of areas related to biomedicine and health, including life, behavioral, and chemical sciences and bioengineering. MEDLINE is the primary database for the U.S. National Library of Medicine and the main component of PubMed. More than 19 million references are available on the database from nearly 5,600 worldwide journals and a smaller amount of other sources, such as newspapers, magazines, and newsletters, dating from approximately 1946 to the present (U.S. National Library of Medicine, 2011).

ScienceDirect is a scientific database with a collection of more than 2,500 peer-reviewed journals and 11,000 books. The database currently contains more than 9.5 million journal articles and book chapters. ScienceDirect is a component of Elsevier, the world's largest provider of scientific, technical, and medical information (SciVerse, 2012).

Web of Science provides access to six citation databases including Science Citation Index Expanded, Social Sciences Citation Index, Arts & Humanities citation Index, Conference Proceedings Citation Index, Index Chemicus, and Current Chemical Reactions. These databases allow the researcher to find sources on a variety of subjects, including agriculture, anthropology, law, engineering, several sciences, and more. Ranging from 1900 to the present, the database contains more than 12,000 journals (Thomson Reuters, 2012).

The Communication Abstracts database provides sources related to communication, mass media, and other communication-based subjects. It has more than 254,000 records from 330 major world-wide journals (EBSCO Publishing, 2012).

Literature searches were performed using the following key words in various combinations: *elderspeak, elderly, linguistic accommodation, communication, older adults, patronizing speech, secondary baby talk, communicative predicament of aging, discourse analysis, interpersonal communication*. From the searches, 493 titles were considered to be relevant to the topic. The number of titles from each database without duplicates can be found in Table 1.

Table 1: Number of Titles from Each Database without Duplicates

Database	Numbers of Titles
CINAHL	74
PsycINFO	106
Medline	9
Communication Abstracts	23
ERIC	42
LLBA	19
Web of Science	75
Science Direct	145
Total	493

After a thorough search for the relevant sources has been completed, the next step in the systematic review process is to determine which of the articles will be analyzed. At least two researchers should sift through the articles independently; any discrepancies should be resolved by a third researcher (Kitchenham, 2004). The researchers should sift through the collected article titles to determine which articles are relevant and which are irrelevant (SIGN, 2011) by applying the inclusion and exclusion criteria that should be based on the research question and already be developed in order to avoid bias (Kitchenham, 2004). The inclusion and exclusion criteria should, at first, "be interpreted liberally" (Kichenham, 2004, p. 10) so that the full text of the article is retrieved unless the study can unmistakably be excluded based on its title or abstract (Kitchenham, 2004). After the first sift by title of the potential articles from the search output, the abstracts of all the remaining articles are then sifted to eliminate any that are clearly irrelevant (SIGN, 2011). When all stages of sifting are completed, the full text version of all remaining articles will be collected for analysis (SIGN, 2011). The researchers should also create a list of the sources that were excluded and the reason for the exclusion (Kitchenham, 2004).

After the 493 titles were sifted, 146 were selected to be reviewed at the abstract level. The abstracts were sifted by two researchers, the author and the thesis advisor. Any discrepancies were resolved by a third researcher, a thesis committee member. From the abstracts, 39 articles were selected to be reviewed at the full-text level. The researchers included sources whose subjects have either dementia or normal cognitive abilities; however, studies exclusively of patients with dementia were excluded. The authors included articles from all years. Unpublished materials were included if they

were relevant. Articles that related to training or intervention against elderspeak were excluded because the researchers were concerned with the features of elderspeak that might be harmful or helpful as opposed to the remediation of the use of elderspeak. Studies of the perception of the speakers who use elderspeak were also excluded, but a few studies that included the perception of the elderspeak itself were included. Articles that were commentary or about theories related to elderspeak were excluded. The complete checklist used for selecting articles can be found in Appendix A. Of the 39 full-text articles, 28 were selected to be analyzed using a modified SIGN checklist.

After the primary sources were selected, the quality and validity of each source is assessed by analyzing the methodology of the study (SIGN, 2011). "Quality instruments" are used to determine the quality of each source. The instrument is a checklist of factors that need to be analyzed in each source (Kitchenham, 2004). While the factors that are analyzed will vary depending on the type of study, SIGN provides different checklists that allow for consistency during the assessment (SIGN, 2011). Because the assessment process is somewhat subjective and could lead to potential bias, the evaluation of the studies should be completed by at least two researchers (SIGN, 2011). Any discrepancies in the quality assessment should be handled by a third researcher (SIGN, 2011).

The checklist utilized for 27 of the 28 articles was a modified checklist created by combining aspects of the checklists provided by SIGN for systematic reviews and meta-analyses, randomized controlled trials, and cohort studies. One systematic review was analyzed, and the SIGN checklist for systematic reviews and meta-analyses was used for this article. The modified checklist and the systematic review checklist can be found in Appendix B and Appendix C, respectively.

After the checklists were completed for the study, the researchers assigned each study a rating based on the SIGN coding system provided in Table 2 and a level of evidence number based on the study type, as shown in Table 3 (SIGN, 2011). Randomized controlled trials and meta-analyses are assigned the highest rating because of the increased quality of evidence, while studies based on expert opinion, conference report, or clinical experience are assigned the lowest rating (SIGN, 2011).

Table 2: Coding System Used in Rating Studies for Quality Assessment – Adapted from the Scottish Intercollegiate Guideline Network.

++	All or most of the criteria have been fulfilled. Where they have not been fulfilled the conclusions of the study or review are thought very unlikely to alter.
+	Some of the criteria have been fulfilled. Those criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions.
-	Few or no criteria have been fulfilled. The conclusions of the study are thought likely or very likely to alter.

Table 3: Hierarchy of Study Types - Adapted from the Scottish Intercollegiate Guideline Network.

1	Meta analyses; Systematic reviews of RCTs; RCTs
2	Systematic reviews of case-control or cohort studies; Case-control or cohort studies
3	Non-analytic studies, e.g. case reports, case series
4	Expert opinion; Conference report; Clinical experience

Note: RCT = Randomized Controlled Trial.

After the quality of each study has been evaluated, the data is taken from each in order to identify the results obtained from the study (Kitchenham, 2004). In order to avoid bias, the data extraction forms should be created during the review protocol

(Kitchenham, 2004). During this step of the systematic review process, numerical data and other information are gathered from the studies, including number of subjects, treatment effect, and confidence intervals (Kitchenham, 2004). This information is important for summarizing the results of the studies (Kitchenham, 2004). Like all parts of the systematic review, the data extraction process should be completed by two researchers whose results are then compared and, if necessary, a third researcher will resolve any disagreements (Kitchenham, 2004). A grade of recommendation, as shown in Table 4, should also be made based on the quality of the entire body of evidence in order to ensure that a single study is not used to support the recommendation (SIGN, 2011).

Table 4: Grades of Recommendation – Adapted from the Scottish Intercollegiate Guideline Network.

A	At least one meta-analysis, systematic review, or RCT rated as 1++, and directly applicable to the target population; *or* A body of evidence consisting principally of studies rate as 1+, directly applicable to the target population, and demonstrating overall consistency of results
B	A body of evidence including studies rate as 2++, directly applicable to the target population, and demonstrating overall consistency of results; *or* Extrapolated evidence from studies rated 1++ or 1+
C	A body of evidence including studies rated as 2+, directly applicable to the target population and demonstrating overall consistency of results; *or* Extrapolated evidence from studies rated as 2++
D	Evidence level 3 or 4; *or* Extrapolated evidence from studies rated as 2+

Note: RCT= Randomized Controlled Trial

After being extracted, the data is synthesized. This step involves organizing and summarizing the results of the studies, and the format should be consistent with that of the question (Kitchenham, 2004). To make comparisons between studies, the similarities

and differences between the primary studies, including intervention, population, context, sample sizes, outcomes, study quality, should be presented in tables (Kitchenham, 2004). The researcher will then identify whether the results from the primary studies are consistent or inconsistent and report the results, usually in a thesis format or journal or conference paper (Kitchenham, 2004).

In accordance with the guidelines outlines by Kitchenham (2004) and SIGN (2011), each of the relevant articles selected was reviewed by two researchers, the author and the thesis advisor. Quality assessment checklists were completed individually by each researcher for each article and an overall grade of recommendation was made. The data was taken from each article by the two researchers using the protocol developed and was displayed in tables in order to exhibit the similarities and differences between the studies. Finally, a descriptive analysis of each article, the overall results and conclusions, recommendations, and suggestions for future research were provided.

Chapter 4

Results

The 28 articles that were selected for SIGN checklist review are summarized in this chapter. The articles are presented in chronological order by publication date. Articles published in the same year are discussed in alphabetical order. For each article, the first paragraph describes the methodology, the reliability, and the results of the study. The second section discusses the strength or weakness of the internal and external validity of the study and describes how the study contributes to the key question of the current systematic review. To help with organization, the authors and dates of the articles are underlined.

Ashburn and Gordan (1981) identified characteristics of speech used by adults to elderly adults in order to show that simplified speech is not used only with children. Ten staff members at a rest home in eastern North Carolina and ten volunteers were asked to speak to two elderly residents in the rest home, as well as an adult peer for approximately 30 minutes. One of the elderly residents was alert while the other was not. The conversations were transcribed and the first 100 utterances were coded for seven linguistic features: mean length of utterance (MLU), complexity, imperatives, interrogatives, repetition, speech rate, and pronominal substitution. An analysis of variance was used to calculating the reliability of MLU and speech rate, which were both 0.99. The reliability of the classification of utterances as interrogative, imperative, repetitive, and complex was determined by dividing the total number of agreements by the total number of agreements plus disagreements; the reliability was calculated to be 0.967. The reliability for pronominal substitution was 0.87. The results of the study

suggested that both the staff members and volunteers adjusted how they spoke to elderly adults. The effect of four characteristics of the staff members' speech—MLU, complexity, imperatives, and interrogatives— was significant. Staff members used shorter sentences, less complex sentences, and more imperatives and interrogatives when talking with both alert and non-alert residents. Volunteers did not significantly modify the MLU, complexity, or imperatives of their speech to the elderly residents; they did, however, use more interrogatives with the non-alert residents, but fewer than the staff members used. The effects of repetition, speech rate, and pronominal substitution were not significant.

The internal validity of this study was found to be poor. No information was reported regarding participant characteristics, such as age, gender, etc. The internal validity could also have been affected by having the investigator in the room to operate the recording and the location of the recorder was not reported. Further, the participants were not randomly assigned to an elderly conversation partners, instead, they select their own partners. In addition, the external validity of this study was judged to be poor due to the small sample size (n=20). The generalization of the results could also have been threatened by the fact that the study took place in only one rest home, with staff and residents of the rest home as participants. Neither the staff members nor volunteers were randomly selected. This could also threaten the external validity. Although this study provides evidence that speech to elderly adults is different than speech to younger adults, there were several aspects of the study that could affect its results.

Caporael (1981) conducted three investigations: a field study and two judgments studies. Participants of the field study included nine nurses' aides' who spoke to six male

and nine female care receivers at a health care facility during lunch. The field study resulted in 9 hours of speech to caregivers by care receivers, staff, and visitors. The nurses' aides were all female but were of different age, experience, and work duration at the health care facility. The care receivers also had different levels of mobility, activity, speech production, and physical and cognitive health. The caregivers' speech was coded as speech to other caregivers (normal adult speech), speech to care receivers that was not baby talk (non-baby-talk), or speech to care receivers that was baby talk. The caregivers also rated the care receivers on several aspects, including language use, eating behavior, sociability, alertness, and likeability. Two naïve judges and two experienced judges, who were counted as a single judge, coded samples of the speech. Cohen's kappa for the three combinations of the judges was determined to be 0.85, 0.85, and 0.81. This study identified 22% of the 1,995 sentences from caregivers to care receivers was baby talk. Characteristics of the care receiver did not influence the amount of baby talk spoken to the care receiver, as there was no correlation between the ratings and the amount of baby talk used.

The internal validity of this study appeared adequate. The care receivers were only included in the study if they were in the dining room for eight of the eighteen recording sessions and at least four of the caregivers spoke to them. The internal validity of this study could have been compromised by variance in the groups of caregivers and care receivers. The external validity of this study was thought to be low due to the limited sample size; however, the age range of the care receivers (ages early 60s- late 90s) allows for generalization. Because caregivers were aware they were being recorded, they may have modified their speech. This may have affected the external validity.

For the first judgment study, the vocal tone of speech to elderly adults was compared to the vocal tone of speech to children. Nine female and seven male undergraduate psychology students compared the speech samples from the field study after the content had been masked to content-filtered messages of teachers' aides speaking to two-year-old children at a nursery school. The participants then reported whether they believed the speech was to an elderly adult or to a child. Two judges rated the content-filtered speech samples on pitch, pitch variability, word separation, speed of speech delivery, and end inflection. The reported interrater reliability was as follows: word separation, .29; end inflection, .87; word separation, .42; pitch variability, .89. The study, based on intonation only, found the participants to be able to correctly identify the speech to children 89% of the time. The speech to elderly adults, however, was also identified as speech to children 75% of the time. The baby talk speech significantly differed from non-baby-talk and adult speech ($p<0.01$). There was no significant difference between baby talk at the different settings. Additionally, there was a difference between adult speech and non-baby-talk ($p<0.10$). The participants also read the transcripts and rated the target of the speaker. The Pearson's product-moment correlation between the transcripts and the content-filtered messages was 0.42 ($p<0.01$) and was significant at the health care facility ($p<0.01$) but not at the nursery school. The author concluded that intonation and content of speech are related. Finally, a stepwise multiple regression analysis of the prosodic features (which were rated by the two judges) found that the majority (61%) of the difference in the ratings of the participants was based on high pitch and wide pitch variability.

The internal validity of this study was judged to be good. The author accounted for extraneous variables by ensuring that the speech samples chosen included no extraneous speech or background noise. The speech samples were similar in that they all contained five to seven words and were less than four seconds long. Order effects were controlled by randomly determining the order of the caregivers and counterbalancing the voice type and sentence form of each caregiver. The rating sheets were counterbalanced by reversing the order for half of the participants. The external validity of this study was thought to be low due to the limited sample size.

The second judgment study examined the pleasantness, comfort, irritation, and arousal of baby talk, non-baby-talk, and adult speech as judged by 62 female students in an introductory psychology class. Each participant listened to the content-filtered messages of the nurses' aides from the field study and rated them on the four variables. The correlations between pleasantness and comforting for baby talk and non-baby-talk were significant (both $ps<0.01$). Baby talk was found to be more comforting ($p<.05$), less arousing (a negative characteristic) ($p<0.01$), and less irritating ($p<0.01$). The speech styles did not significantly differ on the rating of pleasantness. Non-baby-talk was judged to be more arousing ($p<0.01$), more irritating ($p<0.025$), and less comforting ($p<0.01$) than baby talk, which suggested that baby talk is judged more positively than non-baby-talk.

The internal validity of this study was found to be good. The speech samples of the caregivers were randomly ordered and the participants were blind to the messages of the speech samples and to the addresses of the messages. The external validity of this study seemed low due to the limited number of care givers, whose speech is being

examined. Further, the results may not be generalizable due to the focus on only intonation of elderspeak. Additional features, such as content, need to be studied. Overall, Caporael's study contributed to the current systematic review by providing early evidence that speech to elderly adults and speech to young children is very similar in terms of intonation. It also suggested that the high pitch and pitch changes are key features of elderspeak. Caporael labeled baby talk a "socioloinguistic speech register" (p. 882) due to its use with all of the care receivers and not a modification of language based on the characteristics of the care receivers. In addition, her results demonstrated that speech to elderly adults that is not baby talk is still not the same as adult speech. Further, the study provides evidence that baby talk was perceived to be more comforting that the other form of speech to elderly adults, non-baby-talk.

Culbertson and Caporael (1983) analyzed the speech samples from Caporael (1981) for sentence length and message content. The previous study (reviewed above) analyzed the speech of nine nurses' aides when talking to fifteen residents of a health care facility. The residents included nine female residents and six male residents and the speech samples analyzed took place during lunch while the nurses' aides were helping the residents. The nurses' aides were all female, but their ages, experience, and years of employment varied. The residents' ages ranged from 60-90 years and their abilities also differed in terms of mobility, level of activity, amount of talking, physical health, and cognition. The speech to residents was coded as baby talk or non-baby-talk, and speech between caregivers was coded as caregiver speech. Two judges with field experience were counted as one and their codings were compared with two independent judges. Cohen's kappa for interrater reliability for the coding of the samples was .85, .85, and

.81. For coding the messages as offering, encouraging, imperatives, repeating, greeting, sympathy, or other, the Cohen's kappa was .84. The results of the study based on 10,000 random permutations found that speech between caregivers is longer than baby talk and non-baby-talk ($p<.0001$). Speech to residents that wasn't baby talk was also longer than speech to residents that was baby talk ($p=.003$). However, one nurse produced more sentences than the other nurses (about 30% of the total sentences). When her speech was removed, the difference between the length of the baby talk and non-baby-talk speech was not significant. In addition, the majority of the participants rated more baby talk utterances than non-baby-talk utterances as "encouragement" than "offering."

The internal validity of this study was thought to be good. The coders were blind when coding the speech samples. The authors also controlled for differences in semantic and syntactic constructions due to different speech types by only using complete sentences in the analysis. There could have been extraneous variables from the variance in the group of nurses' aides who differed in their age, experience, and length of employment in a nursing home and the differences in the characteristics of the elderly adults. The external validity of this study seemed low due to the small sample size. The generalization of the results also seemed limited due to the participant group being entirely female. Although the generalization of the results may have been unclear, this study provided evidence that speech to elderly adults, even if it is not baby talk, differs from normal adult speech.

Caporael and Culbertson (1986) analyzed the speech of 20 nurses' aides to residents at two different institutions, a skilled nursing facility (Institution A) and a health-related facility (Institution B), during lunch. Each of the nurses' aides (ten from

each facility) was recorded for two sessions of thirty minutes each. Institution A had 45 residents (age 72-99) and Institution B had 80 residents (ages 62-100); the residents at both facilities had various levels of abilities. In addition, the residents at Institution B were in better health than those at Institution A. The nurses' aides' speech was transcribed and speech between caregivers and speech between care receivers were analyzed. The grammatical form and intent of the baby talk messages were analyzed to determine if the verbal message and nonverbal content were the same. Due to a low frequency of baby talk speech used at Institution B, the baby talk speech was not coded for that institution. Cohen's kappa was calculated by the combinations of two experienced and two naïve judges for the reliability for determining which utterances were baby talk, based on exaggerated intonation. Cohen's kappa was determined to be 0.72, 0.52, and 0.52. Interrater reliability was also calculated for determining both the form and intent of the messages. The mean percentage interrater reliability was 0.79 at Institution A and 0.85 at Institution B. The results of the study found that the interaction of institution × speech type × mode was significant ($p<0.001$). Speech type × mode was also significant at both institutions (both $p<0.001$). In addition, the speech between the nurses' aides and the speech between nurses' aides and the residents was significantly different at both institutions (both $p<0.01$). Question was the most frequently used mode of speech to the care receivers, as the nurses' aides frequently asked the care receivers about their needs. The care receivers at Institution A were considered to be more dependent than the care receivers at Institution B—the nurses' aides frequently fed the care receivers at Institution A, but not at Institution B. The authors concluded that the level of dependency, not necessarily being a resident of an institution, leads to the use of

baby talk. The speech to residents at Institution A consisted of 24% baby talk, whereas at Institution B, baby talk occurred so rarely that it was not coded.

The internal validity of this investigation was deemed to be adequate. In order to control for the participants being influenced by the presence of the observers, the observers practiced the procedures at the institutions for a month before the data was collected. The observer was also present before and after the speech samples were collected. To control for order effects, no caregiver was recorded on consecutive days and the order of recording was determined primarily by the work schedules of the participants. Additionally, limited information was provided about the participants and the two institutions differed substantially. The external validity of this study was found to be low primarily due to the limited sample size (10 nurses' aides at each facility). This study added to the current systematic review by providing evidence that speech to elderly adults in institutions differs from speech between caregivers in the institutions. The study also provided evidence that the use of elderspeak is not necessarily determined by the elderly adult being in an institution, as it was rarely used at the health-related facility. The low external validity of the investigation, however, should be taken into consideration.

Cohen and Faulkner (1986) investigated the effect of intonation and word stress on older listeners' ability to comprehend and recall spoken discourse. Two volunteer groups, 30 young adults, ages 19-33, and 30 older adults, ages 62-80, listened to 12 recordings of newspaper articles, each recorded in three different versions—focal stress, non-focal stress, and no stress. In the focal stress version, heavy stress was placed on important words or to emphasize syntactic structure, and was thought to help comprehension. The non-focal stress version included heavy stress placed on words that

were not semantically important and would not help with processing. In the no stress version, the speaker used a monotone voice. Three tapes were made, each with a practice text, four focal stress texts, four non-focal stress texts, and four no stress texts. The subjects were divided into three groups, and each group listened to one tape. After listening to each text, the subjects answered four to five questions to assess their comprehension of the text. Answers were graded on a points scoring system, with half points allotted for answers that were correct but incomplete. Two judges score the answers, however, no reliability data was provided. The findings suggested that older adults are better able to comprehend and recall when focal stress is used. The age and stress condition main effects were both significant at $p<0.02$. The focal stress condition differed from the non-focal stress condition ($p<0.01$) and the no stress condition ($p<0.05$). The non-focal stress and no stress conditions did not differ. The age × stress interaction was also not significant. The older adults performed better with focal stress than no stress, and performed better with no stress than non-focal stress. Stress, in contrast to older adults, had little influence on the performance of the young adults. The participants also reported that the stress was not patronizing or annoying.

The internal validity of this study was thought to be good. The authors controlled for both confounding and extraneous variables. Text distribution was balanced across the tapes so that the focal, non-focal, and no stress version of each text was on a different tape. In addition, blind scoring eliminated bias. The groups of young and older adults were similar at the beginning of the study— each group had 15 males and 15 females, all were monolingual native English speakers, and their educational backgrounds and performance on the WAIS vocabulary test were comparable. The external validity of this

study was also good, allowing for the generalization of the results. The sample size (n=60) and the age ranges of each group are adequate; however, the subjects were selected from a group of volunteers, the older adults were all retired professional people, and the younger adults were all students, which could affect the generalizability to other socioeconomic groups. Cohen and Faulkner's study provided evidence of a beneficial aspect of elderspeak. The results support the use of stress on key words, a common characteristic of elderspeak, in improving the comprehension of older adults.

Edwards and Noller (1993) examined the perceptions of young and older adults on the interactions between a female nurse and an elderly woman. Forty elderly women (ages 65-89, mean=69.82), forty first-year nursing students (ages 17-42, mean=20.8), and forty first-year psychology students (ages 17-47, mean=22.52) watched a videotape of an interaction. Eighteen different interactions were filmed. Six communication strategies were used, including altered pitch (rising intonation on last two words of the interaction), touch (the nurse patting the elderly woman on the shoulder while talking), expression (the nurse saying "That's a good girl," at the end of the interaction), and then combinations of the three strategies (touch/expression, touch/pitch, and pitch/expression). Each of the strategies was filmed in three different contexts, including a bathroom setting with the elderly woman in a wheelchair, a bedroom setting with the elderly woman in bed, and a setting with the elderly woman reading a magazine in a lounge chair. The participants rated the interactions on three qualities—patronizing, status, and solidarity. No reliability data for the study was provided. The study found that, for the patronizing measure the main effect for communication strategy was significant ($p<0.001$) and group membership × communication strategy was significant ($p<0.001$). The main effect for group

membership was not significant. Group membership, communication strategy, and group membership × communication strategy were all significant (all $p<0.001$) for the status measure. For the solidarity measure, group membership was significant ($p<0.01$), as were communication strategy and group membership × communication strategy (both $p<0.001$). In terms of status, the elderly adults rated most of the conditions more positively than the students, suggesting the elderly adults felt them to be less dominant and more respectful than the students. In terms of solidarity, the psychology students perceived the communication strategies as more supportive and warmer than the other two groups did. Overall, the pitch/expression condition received the most negative ratings for status and solidarity and was rated the most patronizing. Elderly adults rated this condition as less patronizing than the young adults.

The internal validity of this study was judged to be good. The authors controlled for several extraneous variables. The same actors were used for each interaction, the elderly woman never responded in the videos in order to prevent the response from impacting the results, and the elderly woman's physical or cognitive status was not mentioned, although the elderly woman in the bathroom setting was seen in a wheelchair. The camera was kept at the same distance to prevent the participants from being influenced by nonverbal behaviors and each interaction was approximately the same length. All of the participants were female, which the authors explain is due to the fact that most nurses are female and that females make up the largest proportion of people over the age of 65. The groups of psychology and nursing students were also similar in terms of age and schooling, and the elderly group was made up of females who still live in the community. They were similar in terms of mobility and had a high level of

cognitive ability. In addition, two videotapes that reversed the order of the interactions were used to prevent the order from influencing the participants. Further, the participants were not told that they were viewing different communication strategies, only that the study was about communication. The external validity of this study was found to be good due to the large sample size, students being from two universities, and the older adult volunteers being from two senior citizens centers. All of the groups had a wide range of ages. This study contributes to the current systematic review by suggesting that changes in pitch and expressions such as "That's a good girl" are negative features of elderspeak since both were perceived to be patronizing by both young and old adults. However, the older adults' more positive ratings provide support for the idea that elderly adults may not be necessarily offended or upset by elderspeak.

Hummert and Shaner (1994) examined the effects of stereotypes on young adults' ratings of the vocal characteristics of an elderly adult. Thirty young adults from introductory communication classes were shown four photographs of elderly adults. The first two photographs provided practice trials. Each photograph had a description that suggested either a negatively or a positively stereotyped the elderly person. The negatively stereotyped elderly adult (a picture of a woman over 80 years old) was labeled *Severely Impaired*. The positively stereotyped elderly adult (a picture of a woman in her 60's) was labeled *Perfect Grandparent*. After rating the vocal qualities of the elderly adults, the participants were also asked to rate the vocal qualities they believed they would have used if talking to that particular elderly person. Finally, the participants were asked to orally provide a hypothetical message they would have used to persuade the *Severely Impaired* adult to report stomach pains to a nurse or to persuade the *Perfect*

Grandparent to attend her recently divorced son's second wedding. Coding of the messages was completed by coders who were blind to the hypothesis. Intercoder reliability in percentage agreement and Scott's pi was as follows: utterance segmentation, 92%, Scott's pi=.94; clauses, 99%, Scott's pi=99%; arguments (a statement about what the elderly adult should or will do or a reason given for the desired behavior), 91%, Scott's pi=.82; emotional tone, 79%, Scott's pi=.72. The results of a multivariate analysis found stereotype to significantly affect the ratings of the elderly adult's vocal qualities ($p<0.0005$) and the young adult's ratings of their own vocal qualities ($p<0.0005$). The study found that the participants believed the *Severely Impaired* adult's voice would be more wavering and thinner than the *Perfect Grandparent's* voice (both $p<0.005$). They also rated the *Severely Impaired* adult's voice as less expressive, slower, less understandable, less loud (all $p<0.0005$) and that her intonation and pronunciation would be less exaggerated ($p<0.007$, intonation; $p<0.004$, pronunciation). The participants rated their own voices towards the *Severely Impaired* adult as more hesitant ($p<0.0005$), more loud ($p<0.001$), less fast ($p<0.0005$), less expressive ($p<0.02$) and having more exaggerated pronunciation ($p<.001$). Exaggerated intonation and high pitch were not significant. Additionally, the results showed that stereotype significantly affected the participants' messages ($p<0.006$). When speaking to the *Severely Impaired* adult, the participants' messages contained fewer arguments ($p<0.003$) and the utterances were shorter ($p<.04$). Grammatical complexity, rate, and directiveness were not significant.

The internal validity of this study was perceived to be low. Extraneous variables could have resulted from the differences in the two elderly targets. For example, the targets differed in age and the contexts of the situation for each target differed. The

reliability data for the intercoder agreement on emotional coding (79%) was also lower than the agreement on other features. The authors did counterbalance the participants by having half of them rate the *Severely Impaired* target first and the other half rate the *Perfect Grandparent* target first. The external validity of this study was thought to be low due to the limited sample size (n=30) and the fact that all of the participants were volunteers from introductory communication classes. Both of the targets were female, so it is not clear if the results would generalize to male elderly adults. This study contributes to the current systematic review by providing evidence that young adults modify their speech to elderly adults based on stereotypes associated with elderly adults; however, extraneous variables could have affected the results of the study and generalization of the results remained somewhat unclear.

Kemper (1994) analyzed the speech of ten service providers and ten caregivers to two or more young or middle-age adults and two or more older adults. Observations of the service providers were conducted at a seniors' center while observations of the caregivers were conducted at an adult day center and at a nursing home. When speaking to young or middle-aged adults, the participants spoke to high school students, undergraduates, volunteers at meal sites, and nursing home staff members. The participants spoke to older adults who were demented, non-demented, community-living older adults, and nursing home residents. Two ten-minute speech samples in which the participant was controlling the conversation for at least 60% of the utterances were selected for each of the participants. The two samples, which were similar in terms of vocabulary and presentation format, were analyzed for several linguistic features, such as syntactic complexity, verbal fluency, and propositional density. Interrater reliability data

is as follows: segmentation into utterances, 87%; identification of sentences vs. sentence fragments, 92%; propositional density, cohesive ties, percentage of long words, utterances per turn, utterances per topic, redundancy; 85% or better; coding of clauses, fillers, diminutives, and tag questions, 90% or better. Speech rate and pause duration were calculated by spectrographic analysis with .01 second accuracy. The SALT computer program was used to calculate mean length of utterance (MLU) and type-toke ratio (TTR) for the speech sample. The study found the multivariate effect of speaker to be significant ($p<0.001$). The multivariate effect of speaker and the interaction of audience and speaker were both nonsignificant ($p>0.10$). Both service providers and caregivers spoke differently to the older adults than they did to the young and middle-age adults. The participants adjusted how they spoke to the older adults by reducing the length and complexity of their utterances, reducing the number of cohesive ties and long words (three or more syllables), and using more fillers and sentence fragments. They also spoke more slowly and used longer pauses.

The internal validity of this study appeared to be good. The two speech samples chosen for each of the participants were equated in length, content, and the amount of time the participant was speaking. One factor that could have led to extraneous variables was that the participants were speaking to older adults who were not similar. For example, the older adults at the adult day center had a probable Alzheimer's disease diagnosis while none of the older adults at the nursing home had dementia. The perceived differences in cognitive abilities could have influenced the speech of the participants. The speakers also differed in the size of the group to which they were talking. The external validity of this study was thought to be adequate. The sample size was small; however,

the ages of the participants varied widely. It was not clear how the language samples were recorded or whether the participants were aware of the researcher observing. The participants could have been affected by knowing they were being observed. This study contributes to the current systematic review by identifying features of elderspeak used with older adults, although parameters such as loudness, pitch, and intonation of the speech were not measured in the samples. Finally, the study provided evidence that elderspeak may be used with all elderly adults, as the participants used modified speech with the demented, non-demented, community-living, and institutionalized elderly adults.

Ryan, Maclean, and Orange (1994) studied nonverbal features associated with elderspeak. A group of 120 volunteers and 50 care providers read a script depicting a nurse having a conversation with a nursing home resident. The volunteer group consisted of visitors to a science museum, and their ages ranged from 18-71 (mean=29.4). The majority were female (61%), had 14.3 years mean level of education, all were residents of Canada or the United States, and all either spoke English as their native language or reported English proficiency. The care provider group was composed of direct-care providers or administrators. Their ages ranged from 22-63 (mean= 40.8). The majority were female (98%). Their mean level of education was 15.2 and, like the volunteers, they all either spoke English as their native language or reported that they were proficient in English. In the script read by the participants, the nurse's speech was depicted as either patronizing or neutral. The patronizing version contained imperative and directive sentences, "yes-no" tag questions, and no response to the resident's concerns or explanation of a request. The patronizing version also changed how the resident was addressed from use of the resident's title and last name, to their first name only, then to

the endearment “dearie.” The conversation took place in three different contexts, with the nursing asking for compliance from the resident in taking medicine, at a meal, and during a craft. Participants were given a questionnaire asking them to rate the nurse’s respect and nurturance, to make inferences about the speech and nonverbal features of the nurse’s speech and behaviors, and to rate the resident’s reaction and competence. Both groups completed the questionnaire individually; the volunteers completed it at the science museum and the care providers completed it in a large group setting. Reliability measures, reported as Cronbach alpha coefficients, are as follows: .72, respect; .75, nurturance; .77, resident reaction; .76, resident competence; .85, nonverbal features. The results of the study found that, for the participant’s inferences, the main effects were significant for conversational style ($p<0.001$) and context ($p<0.01$). Participants inferred that the patronizing speech was higher pitched, more shrill, and had more exaggerated intonation and pronunciation. Neutral speech was perceived as more understandable, slower, and softer. Conversational style was also significant for the nonverbal characteristics ($p<0.001$). Positive nonverbal behaviors were thought to be less likely used by the nurse using patronizing speech, while 16 of the 18 negative nonverbal behaviors were thought to be more likely to be used by the nurse using patronizing speech. Some of the most significant negative nonverbal behaviors included “rolling eyes, pursing lips, hands on hips, and repeatedly checking the time” (p. 284). In addition, conversational style also significantly affected the participant’s beliefs about the nurse’s respect ($p<0.01$) as did context ($p< 0.001$), and the interaction of conversational style and context ($p< 0.01$). Lastly, conversational style also significantly affected the participant’s

beliefs about the nurse's nurturance ($p<0.001$) as did context ($p< 0.001$), and the interaction of conversational style and context ($p< 0.001$).

The internal validity of this study appeared to be good. In order to control for extraneous variables, the author's ensured that the scripts were similar. Each was made up of six conversational turns, three for both the nurse and the resident, who alternated turns. Each conversation consisted of eleven sentences and differed by no more than four words. The internal validity could have been threatened by the differences in the two groups of participants. For example, the volunteers (n=120) and the care providers (n=50) were unmatched in terms of numbers. Although the authors suggested that the participants' different ratings of the speech styles supported the ecological validity of the scripts, the internal validity could have been affected by the textual stimulus. The external validity of the study was thought to be good due to the large sample size and range in ages, but generalization could have been threatened as all participants were visitors to the specific science museum or care providers. The results of this study were of interest to the current systematic review because they provided evidence that elderspeak consists of more than just linguistic variations. Nonverbal behaviors, often regarded negatively, may often be associated with patronizing speech.

Kemper, Vandeputte, Rice, Cheung, and Gubarchuk (1995) used a referential communication task to study the speech adjustments made by young adults to older adults and to study the effects of elderspeak on the task performance of older adults. There were 36 young adults and 36 older adults who participated in the study. The ages of the young adults ranged from 18-25 (mean= 23.3) and 46% were male. The ages of the older adults ranged from 60-84 (mean=72) and 38% were male. Both groups were

comparable in the number of years of education completed (mean=15.4) and in their performance on the Shipley vocabulary test (mean= 32/40 correct). The study compared age-matched dyads to age-mismatched dyads. The dyad participant who was the speaker was to give route to be drawn by the second participant on a map and then on a more difficult dot pattern. The speech was analyzed for several linguistic features and the maps were analyzed for accuracy and errors. The participants also completed a modified Language in Adulthood Questionnaire. The reliability of the transcripts was determined by having the transcripts created by one trained coder and verified by a second. The transcripts were also coded by two coders. Reliability measures were as follows: Cronbach's alpha >.92, determination of sentences and fragments, diminutives, tag questions, and measures of grammatical complexity; Cronbach's alpha> .90, speaker and listener discourse styles; Cronbach's alpha= .96, number of map errors; 2 coders agreed on 5 maps' accuracy; Cronbach's alpha =.90, speaking rate; Cronbach's alpha >.85, prosody; SALT computer program used to calculate word and utterance counts, type/token ratios, and MLU. The results of the study revealed a speaker × listener interaction with significant effects on fluency, grammatical complexity, semantic content, speaker style, listener style, and accuracy ($p<0.05$). The young adults adjusted their speech to the older adults by using accommodations such as speaking more slowly, using shorter utterances while increasing the number of words and utterances spoken, using less complex utterances, repeating instructions, using more tag questions, using a wider variety of words, and a lower propositional density. In this study, young adults, however, did not use higher pitch, exaggerated intonation, or diminutives. The older adults' maps were accurate 92% of the time when their partner was a young adult, which was

comparable to the young adults' accuracy with young speakers. The older adults were only accurate 42% of the time when their speaker was an older adult, compared to young adults' 60% accuracy with older speakers. The difficulty of the task decreased the accuracy of the older adults' maps. The main effects for map difficulty and the interaction of difficulty × speaker × listener were significant ($p=0.05$). When the task was more difficult, the young speakers decreased their sentence length, increased the number of words and utterances, and decreased the grammatical complexity of their utterances. Finally, a correlational analysis suggested the older adults' increased accuracy was directly related to the young speakers' shorter sentences, increased number of words and utterances, and slower speaking rate. A decrease in the accuracy of the older speakers' maps was found to be related to the young speakers' decreased grammatical complexity and increased number of instructions per map and repetitions per instruction. In the Language in Adulthood Questionnaire, the older adults reported experiencing more expressive and receptive language problems during the age-mismatched dyads.

The internal validity of this study was thought to be good due to the random designation of the first speaker in the age-matched dyads and due to counterbalancing of the first speaker in the age-mismatched dyads between the young and older adults. The internal validity was found to be good in that the participants did not know they would be paired with a partner of a different age until the second session began. In addition, the city maps and dot maps were comparable in terms of complexity and the routes were comparable in terms of the number of line segments, turns, and crossings. It was not reported if blinding was used when the transcripts were coded; this could have led to experimenter bias. Further, the experimenter also demonstrated the referential

communication task to the participants, which could have affected how the adults completed the tasks. The external validity of this study was believed to be good due to the adequate sample size and range of ages for both groups. The authors, however, did not report how the speaking samples were recorded or whether the experimenter remained in the room during the tasks, which could have affected the results. This study contributes to the current systematic review by identifying characteristics of speech used with older adults. However, it goes beyond description of speech to demonstrate that elderspeak may be beneficial in improving the processing and comprehension of older adults. In this study, older listeners' accuracy improved when the younger adults modified their speech. The results also suggest a negative aspect of elderspeak: Older adults felt they had more language problems when they were paired with younger adults than when paired with older adults.

Whitbourne, Culgin, and Cassidy (1995) studied the perceptions of 35 elderly adults regarding the intonation and content of infantilizing speech. The authors compared the perceptions of institutionalized elderly adults (n=17) to community-living elderly adults (n=18). The ages of the participants rages from 64-94 years of age. All participants were cognitively intact and were screened for reading and hearing abilities. There were thirty females and five males; however, the two groups did not differ in age or gender distribution. The participants read two written statements, one containing infantilizing speech and one containing no infantilizing features. They were also asked to rate their perceptions about speech content. Participants then listened to two audiotape messages in order to rate their perceptions of intonation. The participants rated their perceptions of the likeability, equality of treatment**,** and degree of respect of the infantilizing and the adult

speech. No reliability information was provided. The study found that the main effects of condition were significant ($p < 0.001$), the main effects of content vs. intonation was significant ($p<0.048$), and the main effects of adult vs. infantilizing speech were significant ($p < 0.0001$). The interaction of condition × adult vs. infantilizing speech was significant ($p < 0.0002$) and the interaction of all three variables was significant ($p < 0.03$). Both groups of elderly adults (institutionalized and community-dwelling) rated the adult speech similarly, but the community residents rated the infantilizing speech more negatively in both content and intonation. While the elderly in institutions also the content of infantilizing speech negatively, they, in contrast to the resident in the community rate the intonation of the adult speech and infantilizing speech similarly.

The internal validity of this study was perceived to be poor. The authors provided little information about the methodology of the study. For example, the content of the infantilized speech was only described as being "more appropriate for a child" (p. 112) and the intonation was only described as "varying and high pitched" (p. 112). Examples of the statements were not provided and no reliability information was regarding whether or not the adult and infantilized statements differed by the content and intonation characteristics to be measured. The institutionalized and community-living groups were similar in terms of number, gender, and age distribution, which improved the study's internal validity rating. In addition, the external validity of this study was believed to be poor due to the small sample size, although the wide range in participants' ages supported generalization. Another problem for generalizability was that the overall group of participants was not equal in gender (more females than males). Finally, some selection bias may have existed as some of the participants were selected through personal

contacts. This study provided some evidence that elderspeak can produce negative reactions among its recipients. The authors suggested that elderspeak was not nurturing because their elderly adults did not prefer it to the adult speech samples. Although the study provides some support, the omission of reliability data, limited methodological detail, and comparatively poor validity reduced the certainty of its findings. In addition, the results were based solely on the perceptions and opinions of the elderly, as measures of performance accuracy were not included.

Kemper, Othick, Warren, Bugarchuk, and Gerhing (1996) replicated the study by Kemper et al. (1995), but in this version, in order to see if the speaker would automatically adjust their speech when speaking to an older person, the listener was not allowed to interrupt the speaker. As in the earlier study, this study compared age-matched dyads to age-mismatched dyads, where the speaker was giving directions to the other participant for reproducing a map route followed by a dot pattern route. Each dyad member was the speaker and listener for two city maps and two dot maps. Speech samples were then analyzed for several linguistic features and the maps were analyzed for accuracy and errors. The participants also completed a modified Language in Adulthood Questionnaire. The participants included 37 young adults (ages 18-25, 42% male) and 37 older adults (ages 65-91, 38% male). Both groups had similar years of education (M=15.2) and performed similarly on the Shipley vocabulary test (M=33.5 out of 40); however, the young adults performed better on the Digits Forward and Digits Backward ($p<0.05$). Two coders independently prepared and verified the transcripts of the speech samples. Cronbach's alpha for determination of sentences, fragments, grammatical complexity, and propositional density was greater than .90. Cronbach's

alpha >.90 for analysis of instructions, speaker repetitions, and location checks. Cronbach's alpha =.92 for accuracy of the maps and speaking rates. Cronbach's alpha >.88 for prosody measure. The SALT computer program was used to calculate the number of words and utterances, TTR, and MLUs. The study suggested that young speakers spoke more slowly and had shorter MLUs but that the number of total words and utterances increased, as did the number of instructions, repetitions, and location checks. Further, these changes were more pronounced during the dot patterns rather than in the earlier route maps. There were no differences in prosody when then young adults were giving instructions to the older adults; however, some of the prosody data was not available due to poor recording quality. In addition, the older adults' accuracy improved on both the maps and dot patterns when the young speakers used a slower rate of speech, shorter sentences, and used more words and utterances. The older adults also produced fewer errors when the young adults reduced the number of clauses per utterance and propositional density, and when the young adults used more instructions, repetitions, and location checks. However, according to the Language in Adulthood Questionnaire, the older adults felt they had more expressive and receptive language problems during the age-mismatched dyads despite their relatively improved accuracy.

The internal validity of the study was believed to be good in part due to the subjects' random assignment as the first speaker in the age-mismatched sessions. The maps and dots patterns, which were similar in terms of complexity, were also counterbalanced across sessions. The age-matched dyads were completed before the age-mismatched dyads in order to prevent any carry-over effects, and the participants did not know they would be participating in an age-mismatched group until the second session.

No mention was made as to coder blinding when the transcripts were being coded. Also of note, prior to the referential communication task, the partners had 8 minutes to talk to each other about the events of the day. During that time, the young adults could have formed impressions about the older adults which could have influenced their communication during the map tasks. The external validity of the study was perceived as good due to the adequate sample size and age range of the participants. One factor that could have affected the generalization was that gender was not counterbalanced. This led to a large number of female-female pairings. Lastly, the older adults were recruited from a database of research participants, and this could have reduced the generalizability of the findings. This study contributes to the current systematic review by identifying characteristics of elderspeak used by young adults when speaking to older adults. Further, the study reported which of the features were helpful in improving communication with older adults. Even though these modifications helped their performance, the older adults reported experiencing more problems when their partner was young. The study also provided evidence that speech modifications made by young adults may be based simply on the age of their partners and not on any feedback from them.

Gould and Dixon (1997) studied the effects of overaccommodative speech on young and older women's comprehension and recall of medical instructions. There were 40 young women (college students) and 82 older women. The women were randomly assigned to watch a videotape of medical instructions for one of two fictional drugs. The instructions were presented in either a neutral speech style or an overaccommodative speech style. After watching the tape, the women were asked to complete a subjective ratings sheet and then recall the information from the videotape in their own words. The

recalls were videotaped. Several aspects of overaccommodative speech were employed, including exaggerated intonation; simple, repetitive sentence structure; common, simple vocabulary; explanations of difficult words; increased amounts of questions and directives; increased explicitness and redundancy. The older women completed three working memory assessments in order to determine if overaccommodative speech is more helpful for women with lower working memory than higher working memory. Recall of the medical instructions was assessed by calculating the percentage of propositions recalled and determining if the 8 main points of the instructions were included in the recollection. Interrater reliability (two scorers independently assessed 5% of the recall transcripts) for the percentage of propositions recalled per stimulus was 99%. A points system was used for scoring the main ideas, with "(a) zero points for missing or incorrect information, (b) one point for incomplete or partially correct information, and (c) two points for correct and complete recall" (p. 56). The score of the main points assessment was calculated by adding the points for each of the eight main ideas, resulting in a score of zero to sixteen. The results suggested that the speaking style's effect on the number of propositions recalled was not significant for younger women or older women with lower working memory. Better recall performance was observed during the overaccommodative speaking style, however, than during the neutral speaking style by the older women with higher working memory ($p<0.02$). The participants were also asked to recall the instructions one hour after watching the video. All three groups decreased in their performance; however, the older higher working memory group (OHWM) performed slightly better when overaccommodative speech was used ($p< 0.04$). In addition, the study reported that, although participants listening to overaccommodative

speech were less likely to want the speaker as their physician than the participants listening to neutral speech, the participants preferred the overaccommodative speech, which was rated as more clear ($p=0.001$), more simple ($p<0.001$), and slower ($p=0.002$) than the neutral speech.

The internal validity of this study was found to be good. The participants were randomly assigned to the videotape they would watch, were tested individually, and completed the tasks in the same order. The young and older groups were also relatively similar. The majority of the women said English was their first language (38 younger and 79 older) and the difference in number of years of education was not significant between the young and older groups. Additionally, there were no differences in the vocabulary scores between the OHWM and older lower working memory group (OLWM). The older women, however, performed significantly higher on the vocabulary test than the younger women ($p<0.001$). In order to identify any differences between the two medication's instructions, the authors completed a 2 (story) x 3 (group) x 2 (speaking style) x 2 (time: immediate and delayed recall) analysis of variance. They found that the main effect for story and the two- or three-way interactions involving story effect were not significant.

The study's external validity was believed to be good thereby enhancing some generalizability of its findings. The sample size was thought to be adequate. The older participants were all from the same community and the younger participants were all college students so the results may not generalize to people from other settings. In addition, because all of the participants were female, it was not clear if the results could be generalized to males. Gould and Dixon's study contributes to the current systematic review by providing evidence that overaccommodative speech may not be helpful for all

older adults. It may benefit adults with higher working memories by improving their recall abilities, but may not be helpful for older adults with lower working memories, such as adults with dementia.

Ytsma and Giles (1997) examined how young adults in the Netherlands perceive patronizing and neutral speech by having 80 Dutch students read a patronizing and a neutral speech scenario and rate the scenarios on seven-point scales on different descriptors of the speech, such as *personal, equal, decent*, etc. In addition, the participants were asked to rate their stereotypes of young people (ages 11.7-24.1) and elderly people (ages 62.5 and up). The participants were 18-25 years old (mean age= 20.6 years) and the group included 78 females and 2 males. All of the participants were second and third year students at a training college for Social Pedagogical Assistance. Approximately half of the participants rated the patronizing scenario (n=41) and the other half rated the neutral speech scenario (n=39). In the scenarios, the conversation was between a 79-year-old female nursing home resident with no impairments and a 29-year-old female caregiver who had worked at the nursing home for some years. The neutral speech and patronizing speech scenarios were similar with the exception of "exclusive we," particles such as "Surely you knew…," and diminutives in the patronizing speech scenario. No reliability information was reported in this study. The study found the neutral speech to be perceived as more cultured ($p<0.03$), respectful ($p<0.01$), effective ($p<0.05$), proper ($p<0.01$), and becoming ($p<0.03$). In contrast, the patronizing version was perceived as more spontaneous ($p<0.03$), unbusinesslike ($p<0.01$), and intimate ($p<0.04$). The authors submitted that these characteristics suggest that patronizing speech had both negative and positive characteristics and was "two-dimensional" (p. 263). The

participants liked the neutral speech more, but rated the patronizing speech as having some positive features, as well. The results of the participants' rating revealed several positive stereotypes about the elderly, including that the elderly are more friendly ($p < 0.001$), reliable ($p<0.001$), neat ($p<0.001$), sincere ($p<0.001$), and rich ($p<0.001$) compared to young people.

The internal validity of this study was believed to be poor as the vast majority of the participants were female (78 females, 2 males). In addition, only about half of the students rated each scenario and it was not clear if the groups rating each scenario were comparable. Further, no reliability information was provided regarding the scenarios. The external validity of this study was judged to be poor due to the lack of randomization in selecting the participants to complete the survey. The generalizability of the results seemed uncertain because all of the students were second and third year students from one college and the majority were female. Although this study provided some evidence of positive perception of elderspeak, its comparatively limited validity and reliability appeared to compromise the results.

Hummert, Shaner, Gartska, and Henry (1998) studied the beliefs young, middle-aged, and older adults have about their speech to older adults. The authors were specifically interested in determining if the stereotypes of older adults and setting influenced how other adults spoke to the elderly. Forty young adults, ages 18-27, forty middle-aged adults, ages 35-52, and forty older adults, ages 64-94, rated their hypothetical beliefs about how they would speak to a positively stereotyped older adult (*Golden Ager*) and a negatively stereotyped older adult (*Despondent*). Then the participants formulated a message in which they would attempt to persuade the older

adult to do something in a hospital setting or in a community setting. The messages of the participants were coded as overly nurturing,—"overly sympathetic, only superficially respectful, implicitly questioning of the receiver's competence, inappropriately intimate, and inappropriately solicitous" (p. 134)—directive—"bossy, overbearing, disrespectful, impersonal, and unsympathetic (p. 134-135)—or affirming—"appropriately directive, appropriately solicitous, appropriately familiar, respectful and acknowledging of the receiver's competence" (p. 133). Reliability for message type agreement was 92% and Scott's pi was .88. Other reliability measures include: 91%, Scott's pi= .82, utterance segmentation; 97%, Scott's pi=.93, clauses; 94%, Scott's pi=.81, arguments. The SALT computer program was used to calculate the number of sentence fragments, questions, negative words, directiveness, mean words per utterance, mean clauses per utterance, and type-token ratio. The results of the study found significant multivariate effects for participate age ($p=0.0001$), stereotype ($p=0.0005$), and the interaction of participate age × stereotype ($p=0.001$). The study revealed that participants believed that when speaking to a despondent adult their voices would be slower, less understandable, less expressive, softer, more hesitant, more wavering, and thinner. More overly-nurturing messages and fewer affirming messages were spoken to the *Despondent* older adult; more directive messages were spoken to the *Golden Ager*. Regardless of stereotype, more patronizing messages were delivered in the hospital context. In addition, the middle-aged adults produced more patronizing messages than the young adults, who produced more patronizing messages than the older adults.

The internal validity of this study was good. The participants did not know that the practice trial was, in fact, a practice trial. The positive and negative older adult targets

were also counterbalanced across the participants. The external validity of this study was found to be good due to the adequate sample size and the ranges in the age of the participants. There were equal numbers of men and women in each of the age groups. This study contributed to the current systematic review by providing compelling evidence that more elderspeak is addressed to older adults who are perceived negatively. The context of the conversation was also important, with more patronizing messages occurring in the hospital context. The characteristics of elderspeak, however, seemed to be based on how the participants believed their voices would sound and not on actual language samples. In addition, the oral messages were not spoken to an actual person, but rather to a picture, which was not very realistic/natural.

Kemper, Ferrell, Harden, Finter-Urczyk, and Billington (1998) conducted a study in which young and older adult speakers provided directions to an elderly adult based on a photograph of the elderly adult. The participants included 32 young adults (ages 18-24, mean age= 22, 50% women) and 32 older adults (ages 64-84, mean age= 71.9, 50% women), who were shown a photograph and description that depicted either a normal (positive stereotype) or cognitively impaired (negative stereotype) older adult. One man and one woman were selected for each of the targets. The participants were asked to describe a route traced on map exactly as they would if they were talking to the actual person. Each participant completed three different maps for each listener. Pretesting was done to ensure that the descriptions and photographs matched, although no data was reported. The participants also rated how appropriate they felt different speech accommodations were. The directions provided by each of the speakers were transcribed. The transcripts were verified by two coders and the transcripts were analyzed for various

linguistic features. The intercoder reliability is as follows: Cronbach' alpha>.90 for determination of words, utterances, and grammatical complexity, semantic content and discourse style; Cronbach's alpha=.90 for rate of speech; Cronbach's alpha>.80 for prosody measures; Cronbach's alpha>.85 for propositional density. The SALT computer program was used to calculate the number of words and utterances, TTR, and MLU. The study found that the young and older adults spoke differently to the cognitively impaired adults than to the normal adults. The young adults used shorter sentences and more repetitions; reduced sentence length; decreased proportional density; and increased the number of words, sentences, instructions, location checks, and expansions when talking to the cognitively impaired adults. The authors described this speech style as an "exaggerated version of the elderspeak register addressed to unimpaired older adult" (p. 52). When providing instructions, the older adults' speech was shorter, slower, and less grammatically and propositionally complex than the young adults speech. The older adults used shorter sentences, decreased propositional density, and more words, utterances, and complete sentences when talking to the impaired listeners. When rating the appropriateness of various speech accommodations, the main effect of listener status was significant ($p<0.00$) and both the young and older adults said the speech accommodations were more appropriate for the impaired listeners.

The internal validity of the study was judged to be good. The groups of young and older adults were matched in terms of numbers and gender. Additionally, the descriptions and pictures were pretested in an attempt to ensure reliability. The order of the listeners and maps were counterbalanced to control for any order effects. A male and a female normal and impaired listener were also used. This sought to control for any extraneous

variables resulting from the listener gender. The internal validity could have been affected by the participants knowing they were being recorded. The external validity of the study was good. The sample size and age ranges of the participants appeared to be adequate. This study added to the current systematic review by providing evidence that speakers adjusted their speech to older adults with cognitive impairment more so than they did to older adults with normal cognitive abilities and that these adjustments were felt to be appropriate. Of note, the participants adjusted their speech having only seen a picture and reading a description of the person. This may suggest that a stereotype may be adequate information to form an opinion about the speech accommodations needed by potential listeners. This study, however, was based on simulated speech delivered to a picture; the participants' speech to actual elderly adults might be different. It also did not address whether modified speech would be of benefit to older adults.

Kemper, Finter-Urcyzk, Ferrell, Harden, and Billington (1998) used a referential communication task to study the changes young adults make in their speech to older adults with and without dementia. Thirty young adults and thirty older adults participated in the study. The young adults ranged from 18-26 years old; 53% were female. The older adults ranged from 62-86 years old; 63% were female. The two groups were comparable in the number of years of education complete and on the Shipley vocabulary test, although the young adults performed better on the Digits Forward and Digits Backwards tests. Older adults who had a significant hearing loss or had difficulty understanding speech were not included in the study. The young adults and older adults were paired for two sessions and were asked to provide directions that would enable their partner to reproduce a route. The young and older adults took turns being the speaker and the

listener. During the second session, the older adults were instructed to act as though they had dementia by following a script that contained vague directions when they were the speaker and another script to interrupt the young adult with utterances like, "I'm lost," when they were the listener. They were cued when to interrupt by the experimenter. The participants also completed a modified Language in Adulthood Questionnaire. The transcripts of the sessions were created by two coders and two coders, although not always the same two people, also coded the transcripts for various linguistic features. Reliability is as follows: Cronbach's alpha >0.90, determination of words, utterances, and measures of grammatical complexity; Cronbach's alpha >0.90, semantic content and discourse style; Cronbach's alpha=0.90, speaking rate; Cronbach's alpha >0.80, prosody; Cronbach's alpha=0.85, propositional density. The SALT computer program was used to calculate the number of words and utterances, type-token ratios, and mean length of utterance. The study found that, for the young adults' speech, the multivariate effects of fluency, content, and style were significant (fluency, $p<0.01$; content and style, $p<0.05$). The young adults' increased the number of words, utterances, fragments, instructions per map, location checks, and backchannel affirmatives when talking to older adults who were pretending to have dementia. The young adults also decreased the number of propositions per 100 words, used more expansions and repetitions, and increased in the use of inclusive "*we*" when talking to the older adults during the second session. The authors explained that the young adults also varied the information content but not the delivery of the information.

The internal validity of this study was thought to be good. The participants had not been a part of a referential communication task in the past. The participants were also

paired with a different partner for each of the sessions. The scripts used by the older adults to simulate dementia could have been a threat to internal validity. The authors report that they were "pretested to ensure that they were natural sounding but confusing" (p. 60); however, there was no information provided about *how* they were pretested or *what* the results of the pretest were. Further, no report of blinding was given. The external validity of this study seemed to be good due to the adequate sample size (n=60) and the age ranges of the participants. The two groups were relatively balanced for sex (young, 53% women; older, 63% women). This study contributed to the current systematic review by providing evidence of greater speech accommodations for older adults with dementia than older adults without dementia; however, the referential communication task with a prepared script could lead to different results than a spontaneous conversation between a young adult and older adult with dementia.

Kemper, Othick, Gerhing, Gubarchuk, and Billington (1998) studied the effects of practice on the speech of young adults during a referential communication task in order to see if practice impacted the form and effectiveness of their instructions. First, 10 young adults (ages 18-25, mean age 22.8, 80% female) provided instructions for 50 older adults (ages 60-84, mean age 74.1, 64% female) to trace a route on a map. Each young adult completed five sessions with a different older adult. Both the young and older adult were the speaker and listener for four different maps during each session. The participants also completed a modified Language in Adulthood Questionnaire. The study was then conducted with the young adults providing instructions to young adults (n=60, ages 18-26, mean age=23.4, 28 females). The young adults' instructions from the first and last session were analyzed for several linguistic features. The transcripts were coded by two

coders, although different coders were responsible for different features. Intercoder reliability is as follows: determination of sentences, fragments, grammatical complexity, Cronbach's alpha >.90; speaker and listener discourse style, Cronbach's alpha >.90; map accuracy error score, Cronbach's alpha=.90; rate of speech, Cronbach's alpha=.90; all prosody measures, Cronbach's alpha>.80; number of words and utterances, type-token ratio, and mean length of utterance computed by the SALT computer program. The study indicated that, for the young adults' speech to the older adults, the multivariate effects for fluency, grammatical complexity and semantic content were significant ($p<0.01$). The multivariate effects for prosody speaker style, listener style, and accuracy were not significant. When the young adults spoke to the young adults, only the multivariate effect for fluency was significant ($p<0.05$). With practice, the young adults were found to increasingly modify their speech to older adults. During the fifth session, the speech to older adults contained shorter utterances and more sentence fragments. It also was slower and less complex. Additionally, the young adults provided more instructions and repetitions and fewer propositions during the fifth session than during the first. The extra modifications, however, did not improve the accuracy of the older adults' maps, although they did lower the older adults' perceptions of their communication competence. Specifically, shorter sentences, exaggerated, high pitch, and repetitions caused the older adults to report more expressive and receptive communication problems.

The internal validity of this study was believed to be good. The young adults were paired with a different partner for each session. The groups of young and older adults were similar in terms of the number of years of education they had completed and they had similar results on the Shipley vocabulary test. The young adults' speech could have

been influenced by repeating the task several times, but the authors suggested that, because their speech didn't change as much after several sessions with the young adults, that this was not likely to be the case. The external validity of this study was judged to be good due to the large sample size and the age range of the participants. This study contributed to the current systematic review by providing evidence that some elderspeak features, such as short sentences, exaggerated intonation, and repetitions, are negatively regarded by elderly adults and might need to be avoided if they cause the elderly to perceive themselves as having communication problems. In addition, the study demonstrates that a more modified version of elderspeak did not improve the elderly adults' performance on the task.

Sachweh (1998) analyzed the speech of 33 nurses to 70 residents at a German nursing home to determine *if* nurses use secondary baby talk (SBT), *which* residents receive SBT, and *how* residents respond to SBT. The nurse group consisted of 25 females, ages 19-59, and 8 males, ages 19-34. The resident group consisted of 62 females, ages 45-101, and 8 males, ages 72-89. The study analyzed approximately 40 hours of interactions that took place during morning care routines. The author reported the interactions and frequency with which the nurses use features of SBT, but did not employ statistical analyses. No reliability information was provided for the coding of the transcripts. Some of the most frequently used features of SBT reported included high pitch (51.3%), exaggerated intonation (46%), plural "we" referring to an individual person (65.6%), repetition of the nurses' statements (75.7%), the nurses repeating the residents' statements (71.4%), simplified vocabulary (37.6%), diminutives (29.6%), and pet names (45%). The study found that the nurses did not necessarily use all of the

features of SBT and that the features used depended on the nurse. The age of the nurse seemed to influence the frequency of SBT; nurses around 40 years old used SBT most frequently. The author suggested this may be because most of these nurses had likely raised children and had experience as caregivers. In addition, female nurses were noted as having used SBT more than male nurses. The recipients of SBT in the German nursing home were described as being more likely to be female, frail and more dependent on the nurses, and residents the nurses either favored or disliked. Finally, the majority (48 out of 70) of the residents were not reported to have audibly reacted to the SBT. Eleven residents reacted positively to some SBT but not at all to other SBT. Four residents were reported to have shown negative reactions to some SBT and no reaction to other SBT. The residents with dementia, it appeared, reacted the most strongly, either positively or negatively, to SBT. Sachweh concluded that 84% of the residents appeared to accept and possibly like SBT. One beneficial aspect of SBT, Sachweh suggested, was that by using "we," the resident appeared to be recognized as a part of the activity.

The internal validity of this study was believed to be poor. The internal validity could have been affected by the possibility of gender bias (there were many more females than males). In addition, there is limited information about the residents, such as how many had dementia or other impairments that could have affected how the nurses speak to them. One factor that improved the internal validity was that the author completed a two week observation period prior to recording the nurses in order accommodate the nurses to being observed. However, the nurses' speech could still be affected by being observed and it was not reported how the language samples were obtained. The external validity was perceived to be adequate. The large number of nurses, large number of

residents being observed, and the large range of ages of the nurses and residents improved the external validity. The generalization of the results, however, could have been affected by all the nurse participants being from one nursing home. Sachweh's study added to the current systematic review by providing evidence that the use of elderspeak is not limited to the United States and that there is not a single specific type of elderspeak. Each of the nurses in this study used different features of elderspeak to make their own version of elderspeak. The descriptive nature of the study and its limited internal validity reduce the strength of its conclusions.

Thimm, Rademacher, and Kruse (1998) investigated the effects of positive and negative age stereotypes on the speech of young adults to older adults in Germany. The study also examined the effects of the speaker gender on patronizing speech. The participants included 60 female and 60 male students ages 22-28 who were randomly assigned to read a description of an 82-year-old adult, an 82-year-old negatively stereotyped adult, an 82-year-old positively stereotyped adult, or a 32-year-old young adult. They were then asked to provide instruction for the older adult on using an alarm clock. Fifteen females and 15 males spoke to each of the four targets. All of the targets were named Ms. Berger. The instructions were audio-recorded, transcribed, and coded for verbal and nonverbal features. The Cohen's kappa for variables not calculated with a computer program had Cohen's kappa that ranged from 0.6-0.9. The results of the study suggested that the participants used more patronizing speech features with the older adult with no stereotypes than with the young adult. The participants talked about age-related topics ($p < 0.08$) and age-related deficits more ($p < 0.003$). Instruction to elderly partners contained more feedback requests ($p < 0.06$) and more praise ($p < 0.08$). When comparing

the positively and negatively characterized older adults, it was found that participants used fewer patronizing talk features with the positively stereotyped older adults than with the negatively stereotyped older adults. The competent elderly adult was also spoken to differently than the young adult. The speech to the competent elderly adult was longer ($p<0.04$), had more pauses ($p<0.02$), had more laughing ($p<0.04$), and had more varied intonation ($p< 0.02$). In addition, the female participants spoke in the same way to all of the elderly adults, while the male participants made different modifications depending on which older adult they were talking to. Compared to the positively-characterized adult, the male participants' speech to the negatively characterized elderly adult had more exaggerated pronunciation ($p<0.07$), diminutives ($p<0.08$), and laughter ($p<0.09$), more differences in English word categories ($p<0.07$), explanations ($p< 0.05$), and talk of age-related deficits ($p<0.03$). Compared to the speech to older adults characterized only by age, the male participants' used more English words ($p<0.08$), pauses ($p< 0.09$), exaggerated pronunciation ($p<0.03$), and introduced more age-related topics ($p<0.02$) with the positively-characterized adult.

The internal validity of the study was thought to be good as participants were randomly assigned to one of the four target elderly adults. The authors acknowledged that the target being female could be a confounding factor. A pretest was used to ensure that the descriptions of the elderly adults were accurate in describing how well the older adult could use technology and that the target was either negatively or positively perceived based on the stereotype provided. The authors suggested that the nature of the task could also provide some extraneous variables, as the men might use different vocabulary terms and explanations when describing a technical task. The external validity of the study was

good due to the adequate sample size. The external validity, however, could have been threatened as the participants were speaking to a recording device instead of to an actual person. This study contributed to the current systematic review by suggesting that elderspeak has not been limited to the United States, but also occurs in Germany. It also provided evidence that gender of the speaker may play a role in how young adults modify their speech to elderly adults. The results also show that although the participants modified their speech for all of the elderly adults, they modified their speech even more to those who were negatively characterized. In addition, even elderly adults who were characterized as competent are not spoken to like younger adults. These findings were based on simulated speech and it was not determined if the instructions given by the participants would have proved to be helpful to elderly adults.

Kemper and Harden (1999) conducted three experiments to study the effects of syntactic simplification, semantic elaborations, and prosodic exaggerations on older adults' abilities during a referential communication task. The first experiment examined changes in syntactic complexity and semantic elaboration on older adults' ability to reproduce a route on a map. Participants were divided into four groups with each group watching a different videotape of a speaker reading directions in a different speech style for drawing the route on the map. Different speakers were used for each videotape. The participants consisted of 20 young adults with a mean age of 21.9 years (SD=2.1) and 20 older adults with a mean age of 73.0 (SD=6.4). Interrater reliability is as follows: grammatical complexity, r(8) >.84; semantic content and discourse style, r(8)>.89; speaking rate, r(8)=.94; prosody, r(8)> .82; propositional density, r(8)>.78; word and utterance counts, type-toke ratio, and MLU were calculated by the SALT computer

program. The results of the study found that the multivariate and univariate effects of syntactic complexity and semantic elaboration were significant ($p<0.01$). Syntactic complexity × semantic elaboration was also significant ($p<0.01$). Only the multivariate effect of age was significant ($p<0.01$). Both the younger and older adults benefited from syntactic and semantic simplifications when used separately; however, syntactic simplifications and semantic elaborations used together did not lead to additional improvements in performance. The older adults reported fewer communication problems when they were listening to a speaker who used syntactic simplifications.

The internal validity of this study was good due to the similarity of the young and older adult groups, although the older adults performed better on the Shipley vocabulary test and the younger adults performed better on the Digits Forward and Digits Backward test. However, the genders of the participants were not reported. In order to account for variance between the maps and speakers, the four maps were counterbalanced and the speakers' rate of speech and prosody were analyzed and did not appear to vary across the four speakers. The participants were also randomly assigned to the tape they viewed. The external validity of the study appeared adequate due to the sample size. In addition, none of the participants had ever been involved in an elderspeak study that utilized a referential communication task.

The second experiment of Kemper and Harden (1999) examined changes in syntactic complexity and prosodic exaggerations on the performance of younger and older adults during the referential communication task. Like the first experiment, 20 young adults with a mean age of 24.3 years (SD=2.3) and 20 older adults with a mean age of 75.2 years (SD=7.4) participated in the study. A speaker made four different

videotapes and each participant watched one tape and attempted to retrace the route described by the speaker. Interrater reliability was as follows: grammatical complexity, r(8)=0.72-0.92; semantic content and discourse style, r(8)= 0.84-0.94; speaking rate, r(8)= 0.92; segment durations, r(8)=0.72-0.88; number of words and utterances, type-token ratio and MLU were calculated by SALT computer program. The results reported significant multivariate effects for age and prosody ($p<0.01$). Syntactic complexity was not significant. Further, the interaction of age group × syntactic complexity and age group × prosody were both significant at $p<0.01$. This second experiment found that exaggerated prosody had negative results for the older adults. Not only did they report more communication problems when exaggerated prosody was used, they also performed more poorly on the referential communication task. As in the first experiment, however, the older adults performed better and reported fewer communication problems when simplified syntax was used.

The internal validity of the second experiment was good. The maps and routes were counterbalanced in order to control for variance between tapes. The routes had similar difficulty levels. Acoustic analysis was also used to ensure the prosodic exaggerations were appropriate. The participants were randomly assigned to a videotape to watch. The young and old groups were also similar in terms of numbers and years of education, but the young group performed better on the Digits Forward and Digits Backward and the older group performed better on the Shipley vocabulary test. However, the genders of the participants were not reported. Additionally, MANOVA tests were conducted in order to verify that the semantic content of the four versions of the directions were the same and that no semantic elaborations were used. The external

validity of the study seemed adequate due to the sample size and because none of the members of the groups had ever participated in an elderspeak study using a referential communication task.

The third experiment of Kemper and Harden (1999) also examined the effects of syntactic simplification and prosodic exaggerations on young and older adults' abilities to retrace a route on a map. The young adult group consisted of 45 members with a mean age of 22.4 years (SD=2.1) and the older adult group consisted of 45 members with a mean age of 72.5 (SD=5.9). A single speaker recorded nine tapes that each had 18 different sets of directions. One version was the base version, one had modified syntax that included shorter sentences but did not eliminate embedded and subordinate clauses, and one version eliminated clauses but did not reduce the sentence length. Each version was recorded using either neutral prosody, high pitch, or a slower rate. Each participant was randomly assigned to watch one videotape and five young and five older adults viewed each tape. Interrater reliability is as follows: grammatical complexity, $r(8) > 0.85$; semantic content and discourse style, $r(8) > 0.80$; speaking rate, $r(8) = 0.95$; segment durations, $r(8) > 0.80$; number of words and utterances, type-toke ratio, and MLU were calculated by the SALT computer program. The results of the study found that the multivariate effect of age was significant ($p < 0.01$) and that the interaction of age × prosody × syntactic form was significant ($p < 0.01$). The results indicate that decreasing the number of clauses helped the older adults perform better on the referential communication task but only when prosodic exaggerations were not used at the same time. In addition, only reducing the length of the sentence did not improve the older adults' performance.

The internal validity of the study was thought to be good. The maps and routes were counterbalanced and the participants were randomly assigned to a tape. The different versions of the tapes only differed in MLU, mean clauses per utterance (MCU), pitch range, and speaking rate. The semantic content and semantic elaborations did not change across scripts, and this was statistically verified. The young and older adult groups were matched in terms of number and years of education, although the young group performed better on the Digits Forward and Digits Backward and the older group performed better on the Shipley vocabulary test. The number of males and females in each group was not reported. The external validity of the study is good due to the large sample size. The external validity could be threatened by the participants being tested in different environments. Some were tested individually while others were tested in a group of two to five members. In addition, some were tested in their homes, in a community setting, or in a university laboratory.

This series of three studies contributes significantly to the current systematic review by suggesting that certain features of elderspeak have been beneficial, while other features did not improve the comprehension of older adults and may actually have hindered their comprehension. The results of this study suggested that using semantic elaborations, such as repetitions or expansions, have been helpful for older adults. Reducing syntactic complexity by eliminating clauses was found to be helpful and did not lead to the older adults' reports of perceiving themselves as having more communication problems. Reducing syntactic complexity by shortening sentences, however, did not appear to be helpful and may have even caused older adults to report experiencing more communication problems. In addition, the use of exaggerated prosodic

features, such as higher pitch and slower speaking rates, did not help the older adults. Rather, it led them to report more communication problems and to rate the speaker more negatively.

McGuire, Morian, Coddling, and Smyer (2000) studied the effects of speech style and note taking on improving older adults' recall of medical information. Volunteers (n=169) from central and northwest Pennsylvania participated in the study. The ages of the participants ranged from 55 to 90 years old; 43 were male and 126 were female. The participants were randomly assigned to view a videotape of medical information regarding osteoarthritis presented in a format similar to that of a medical appointment. They were then asked to recall the information in a written free-recall format. The instructions were presented in either an elderspeak style or nonelderspeak style by a male actor portraying a doctor. The elderspeak style contained slower speech, exaggerated intonation, and stress placed on words and phrases. In addition, participants were placed in a note-taking or non-note-taking group, with those in the note-taking group instructed to take notes while watching the videotape. They were not allowed to use the notes during the free-recall. Participant's recall was assessed immediately. Follow-up assessments were conducted one week and one month later. The participants' written recall information was scored by comparing their answers to target items selected from the script. Interrater reliability ranged from 94.5% to 98.11%. The results of the study found that older participants recalled less than younger participants ($p \leq 0.01$). Participants in the elderspeak group recalled more information than participants in the nonelderspeak group (main effect for speech style, $p=0.00$). The participants in the elderspeak group who took notes recalled more than those in the same group who did not take notes

(p=0.01). The speech style, notes, and time interaction was significant at p=0.05, indicating that participants in the elderspeak group who took notes recalled more over time than those who did not take notes. Participants in the nonelderspeak group who took notes recalled less than those who did not take notes.

The internal validity of this study was adequate to control for extraneous variables. The presentation of the information through a videotape "allowed the experimenter, while simulating a physician/patient interaction, to maintain control over content of information disseminated, rate of information delivery, physician's affect, nonverbal behaviors, and amount of information presented" (p. 121). The authors also reported that participants completed a follow-up questionnaire during the follow-up recall sessions in order to check for possible extraneous variables, including personal physician visits, osteoarthritis discussions, or research the participants had done on osteoarthritis; however, the results of the questionnaire were not discusses. Although participants were randomly assigned to the elderspeak or nonelderspeak groups, group sizes were not equivalent. For example, there were 108 participants in the non-note-taking group and only 61 participants in the note-taking group. The non-note-taking group had 67 participants in the nonelderspeak section, but the note-taking group only had 28 participants in the nonelderspeak section. The participants were similar in that they were all community-dwelling and living independently. The external validity of this study could be threatened by the fact that the participants were all from the same geographic area. The sample size (n=169) and age range (55-90) of the participants appeared sufficient to suggest generalizable results. This study was of interest to the current systematic review because it provided evidence that older adults may remember more

information for longer periods of time if the information is presented in elderspeak; however, no self-report of perceived communication competence was included in the study's design. Further, notetaking may also be beneficial to older adults for remembering information.

Gould, Saum, and Belter (2002) investigated the effect of elderspeak on the ability of elderly adults to recall medical information. The participants included 84 young adults, ages 19-32 (mean age=20.9), with 44 men and 40 women, and 70 older adults, ages 59-86 (mean age=71.1), with 38 men and 32 women. One videotape presented an actor portraying a physician using elderspeak to give instructions about a fictional medication and a second videotape presented the actor portraying physician using a neutral speech style. Half of the participants viewed the elderspeak style and the other half viewed the neutral style. The elderspeak style differed from the neutral style in that it used precise intonation, simple and repetitive sentence structures, simple vocabulary, tag questions, explicit speech, and directives. The participants completed a questionnaire about how they felt after watching the videotape and about their feelings about the speaker. They also were asked to write all of the information they could remember from the video in a free-recall assessment and answer questions about the videotape in a structured recall assessment. The interjudge agreement for the cued recall answer sheets was 98%. The results of the study found that the speaking style × age group was significant ($p=0.01$). The older adults were able to recall the elderspeak version slightly better than the neutral version ($p=0.04$). In contrast, for the young adults, the difference between the neutral and elderspeak versions was not significant. The study also found that working memory did not significantly affect recall performance for the young or the

older participants in the neutral version, but in the elderspeak version, better working memory improved the recall of the young (p=0.02) and older (p=0.05) participants. In addition, both groups of participants had positive ratings for the elderspeak version, judging the speaker to be more caring and kind, and negative ratings for the elderspeak version, judging the speaker to be more patronizing and disrespectful.

The internal validity of this study seemed adequate. Only half of the participants viewed each videotape, but the groups did not differ in the average age. The young and old groups did differ in that the young performed better on a working memory test while the older performed better on a vocabulary test and had more years of education. In addition, the results could have been influenced by the fact that approximately 69% of the older adults reported taking prescription medications compared to only 34% of the young adults, and 59% of the older adults had been to a physician more than one time in the last year compared to 46% of the young adults. The external validity of this study was good due to the large sample size and age range of the participants. The study contributed to the current systematic review by providing evidence that elderspeak, including careful intonation, simple sentences, repetitive sentence structure, simple vocabulary, tag questions, explicit speech, and directives, could be helpful in improving the recall abilities of older adults. The results add to evidence that elderspeak is not necessarily liked by older adults. While the participants found the elderspeak to be caring and kind, they also found it more patronizing and disrespectful.

Brown and Draper (2003) conducted a systematic review (SR) of literature between 1990 and 2001 pertaining to speech to elderly adults. A literature search of the terms communication, speech, patronizing language, and older adults identified 24

articles subsequently included in the review. The description of the methodology for the SR was limited; only the databases and journals searched were indicated. The authors claimed that summary tables of the results and definitive conclusions were prohibited by the diverse nature of the studies reviewed. No comparisons were made across the studies and the results were solely descriptive.

The internal validity of this study was found to be poor. The authors provided limited detail regarding the literature search and methodology. Information missing included the total number of articles found, the exclusion criteria used to eliminate articles, and how many readers performed the review. Specific ratings of study quality were not addressed. In addition, while the authors reported identifying 24 articles from1990-2001, only 15 articles were specifically referenced. The external validity of this study appeared to be poor. No clear connections were made between the studies selected for the review. Lastly, this SR may have had a more discipline-focused search (perhaps more healthcare related) as the current SR attempted to provide a more broadly-based interdisciplinary sweep of literature thereby identifying approximately 50 articles from the same time period. Due to the descriptive nature of the 2003 SR, substantial conclusions were difficult to generate.

O'Connor and St. Pierre (2004) studied the perceptions older adults have about the frequency with which they receive elderspeak and from whom they receive elderspeak the most. Participants included 131 community living and 28 from nursing homes. The community living participants included 64 women and 67 men with a mean age of 69.3 years old. The participants from the nursing home included 19 women and 9 men with a mean age of 83.3 years old. Each participant completed a questionnaire

whereby they rated a written scenario presented in elderspeak and a scenario presented in a neutral tone. The study sought to determine if warmth and superiority were perceived as the same across all speaker types and whether elderspeak from people well-known to the rated was perceived more positively than elderspeak from people who were lesser known. The participants also rated how frequently they received speech similar to the speech in the scenarios. Some participants completed a paper-version of the questionnaire while others completed an internet-version. The participants also differed in terms of being married, widowed, and single. Reliability data for the warmth and superiority dimensions revealed a strong consensus as factor congruences were all greater than .98 for speaker-type factors and consensus factors comparisons. The results reported that the participants rated the elderspeak scenario as louder, clearer, and more simplified than normal adult speech. In addition, the participants rated the elderspeak from well-known people as warmer and less superior, than the elderspeak from lesser known people, such as service workers. The younger participants reported that they received elderspeak mostly from unfamiliar service workers. The nursing home residents, however, reported receiving elderspeak from all speakers. The nursing home residents also reported receiving elderspeak more frequently than both the community living residents who completed the paper version and the internet version ($p<0.01$).

The internal validity of this study seemed adequate. The paper versions and internet versions of the questionnaire were comparable; they both used the same instructions. One potential threat to the internal validity was that the community-living and nursing home resident groups were unmatched in terms of number of participants and ages. The external validity of this study was thought to be good in terms of generalization

due to the heterogeneity of the participants. The study had a large sample size and the participants were from the United States and Canada. This study contributed to the current systematic review by showing that elderspeak can be perceived differently than neutral speech and by providing evidence that elderspeak is frequently used with older adults. The study also demonstrated that elderspeak is not limited to caregivers; participants reported receiving elderspeak from many different sources, including friends, family members, and both familiar and unfamiliar service workers.

Melton and Shadden (2005) analyzed the instructions for using a remote control that young adults gave to four different listening partners, including a young partner, an older partner, an older partner with a hearing impairment, and an older partner with a cognitive impairment. The participants included 55 female college students aged 18-25 who were randomly assigned to speak to one of the four hypothetical partners. The participants read a partner description prior to giving their instructions which were recorded. Only 48 of the recordings were analyzed due to recording difficulty, non-native English speakers, and the participant showing a lack of interest in the study. The participants also completed a post-recording questionnaire in which they rated how much they felt their instructions would help their partner. They also rated their beliefs on their partner's ability to learn, desire to learn, comprehension of instructions, and familiarity with technology. Reliability was determined by calculating the percent agreement of the different measures analyzed by the two authors. The correct information units (CIUs) had percent agreement of 97.4%. The number of words per minute was calculated and agreement was within three words on all ten language samples checked for rater agreement. Agreement on minimizing comments, use of personal pronouns, and

references to confusion was determined to be 88.9%; however, when an error was removed, the agreement was 97.5%. The second author and two graduate students coded language samples to determine the T-units, subordinate clauses, infinitives, and repetitions/revisions. Agreement on T-units and subordinate clauses was 91.2% and agreement on infinitives was 96.3%. A third coder was asked to code the samples for revisions and repetitions. Rater agreement for this task was 94.3%. The study found that the different hypothetical partners did not affect the speech of the young adults. Participants rated the young adult partner more highly than the older adult partner on ability to learn, familiarity with technology, and comprehension of instructions ($p<0.001$). The unimpaired older adults were also rated better than the impaired older adults. Spearman rho correlations also showed that the participants' ratings of desire to learn were significantly correlated with ability to learn ($p<0.01$) and comprehension of instructions ($p<0.05$). Familiarity with technology, ability to learn, and comprehension of instructions were also significantly correlated ($p<0.001$). In addition, the participants who used fewer words and clauses, used more disruptions, and produced more syntactically complex instructions rated their instructions as more likely to help their partner.

The internal validity of this study appeared to be good due to the pilot testing in which 42 participants read the partner descriptions. The participants were successful in describing the important characteristics of each of the partners, including age and impairment. The internal validity may be threatened by the fact that all of the participants are female college students in introductory communications and psychology courses. However, the subjects were randomly assigned to the partner they addressed. The external validity of this study was judged to be poor primarily due to the limited number

of participants talking to each hypothetical partner. This study added to the current systematic review by suggesting that the young adults are influenced by the age and impairments of their communication partners and, while, unlike other studies, these characteristics did not influence the young adults' speech, they did influence their perceptions of the older adults' ability to learn, comprehension, and familiarity with technology. The implications from this study, however, should take into account the sample size and the fact that participants were not actually talking to an older adult, but rather to a potential partner. Further, this study also did not provide information on the accuracy of the instructions, but rather only the participants' beliefs about the accuracy of their instructions.

Chye and David (2006) analyzed the speech of three female caregivers at a daycare center in Malaysia in order to identify possible features of elderspeak. The caregivers, who were in their 40s and 50s, spoke to 15-20 older care receivers (ages 56-90), who attended the daycare center for various reasons. The recipients' attendance at the daycare changed from day to day. Some of the care receivers had physical disabilities. The authors collected about 50 hours of data from which they analyzed 90 minutes. No reliability information was provided for this the transcription or coding of the data. The results of the study were limited due to the descriptive nature of the study; however, the authors reported evidence that the features of elderspeak used at the daycare center included simple vocabulary, "over-parenting speech" (p. 172), and repetitions of words or meanings. The over-parenting speech especially occurred when the caregivers were assisting the care receivers with toileting, when the caregiver was labeling the care receiver, such as "beautiful," or when the care receiver was displaying affection toward

the care receiver. The authors use their analysis to suggest that the caregivers used elderspeak as a way of "resocialising" (p. 180) elderly adults. The authors referred to this as a "fossilized norm" (p. 180), because the elderly adults seemed to learn to accept elderspeak as the normal way in which they were addressed.

The internal validity of this study was thought to be poor because of the limited information provided regarding the methodology. The external validity of this study appeared poor due to the limited sample size. Although there were not many conclusions to be drawn from this study and the validity was poor, it did, like the study in Germany, add to the current systematic review some evidence that elderspeak can be found in different countries and cultures, and is not limited to one culture or geographic region.

Lineweaver, Hutman, Ketcham, and Bohannon (2011) investigated the effect a listener's age and comprehension cues have on the complexity of a speaker's story and walking directions. The listener either provided verbal or nonverbal feedback, that suggested they understood what the speaker said or feedback that suggested they did not understand. Speakers in this study included 40 college students, ages 19-22 and one 34-year-old, at a small Midwestern university. There were more females than males (23 females, 17 males), which was reported to be similar to the gender distribution of that university. The listeners were a 19-year-old college student or a 75-year-old confederate. An MLU of the three utterances before and after the comprehension and noncomprehension cues were analyzed separately. Other than reporting that the speaker's messages were transcribed professionally, no reliability data was reported. The results revealed that, for the stories, the utterances spoken to the young or old confederate before the feedback cue did not differ in MLU. After the cue, however, the MLU decreased

($p<0.001$), more so for the older confederate than the younger, and the type of feedback cue did not influence the decrease in MLU. When giving directions, the MLU also decreased after receiving a feedback cue ($p<0.001$), and the type of feedback was also significant ($p<0.001$), meaning that the MLU was lower after receiving a noncomprehension feedback cue than a comprehension feedback cue. Analysis of a Views of Aging Questionnaire completed by the participants who spoke to an older adult found no significant effects. The males' and females' view of aging were similar and the comprehension and mixed comprehension conditions had an equal distribution of participants with negative and positive views.

The internal validity of the study was rated as poor because a single group of participants from the same college were being studied. The young and older confederate were both male, in order to avoid any extraneous variables. The results of the study were also questionable because a larger number of comprehension cues (n=411, 68%) than noncomprehension cues (n=192, 32%) were provided by the confederates. The results could also have been affected by the examiner remaining in the room during the conversation, and it was known to the participants that the sessions were audio-recorded, although it was not reported where the recorder was placed in the room. The participants believed the study was examining conversation between strangers, which could have affected the results as well. The external validity of the study seemed poor primarily due to the small sample size. Each participant only participated in one of four conditions, so there were only 10 participants in each group. All of the participants were college students, and this could also affect generalization. This study provided evidence that speakers adjust the complexity of their speech the most when addressing older adults who

were perceived as not understanding what the speaker was saying. Further, the study only focused on the speaker's MLU, and did not examine other changes that have been noted in previously cited investigations to be characteristic of elderspeak, such as rate and prosody. The combined issues limited the singular contribution of these most recent finding to the current systematic review but do suggest that perception of limited listener comprehension may shorten speaker's utterance length at the very least.

In accordance with the SIGN systematic review process, each of the studies analyzed was rated according to the study type (see Table 3). The majority of the studies (26 out of 28) were rated as a 2 due to the analytical designs of the studies. One of the studies rated as a 2 was a systematic review; however, the articles reviewed in the study were not randomized control trials, so it was not rated as a 1 as a systematic review of randomized control trials would be. Only two of the studies were rated as a 3 due to the descriptive, non-analytical nature of the studies. The studies rated as a 2 were also given a grade of ++, +, or – based on the quality of the study (see Table 2). There were 11 2++ ratings, 10 2+ ratings, and 5 2– ratings. The number of articles associated with each quality assessment can be found in Table 5.

Table 5: Number of Articles Associated with Each Quality Assessment

QA	Number of Articles
2++	11
2+	10
2-	5
3	2

Note: QA= Quality Assessment

Those studies rated as 2++ and 2+ were considered by both of the reviewers to be the most well-conducted studies that provided the most reliable evidence to answer the questions of the systematic review and were included in the discussion. In accordance

with the SIGN procedure, the authors graded the body of evidence collected based on the quality of the studies reviewed (see Table 4). The body of evidence was given a *B* grade due to the preponderance of articles that were given high quality assessment ratings of 2+ or 2++. Based on these studies, the authors were able to come to several conclusions regarding the features of elderspeak and the harmful or beneficial aspects of elderspeak.

Two tables were created to display information from the articles. Table 6 lists all 28 articles in order of Qualitative Assessment, from the highest to the lowest. It provides information from each article about the term used when discussing elderspeak, the discipline(s) of the authors, the country in which the study took place, and the method of statistical analysis used. Table 7 also lists the articles in order of Qualitative Assessment, and provides the participant information for each study.

Table 6: General Information from Each Study

Author	QA	Term Used	Author Discipline	Country	Statistical Analysis
Cohen & Faulkner (1986)	2++	Elderspeak	Psychology	U.K.	ANOVA using arcsin transformation; Page's *L* test; *z* tests; Pearson's product moment tests
Edwards & Noller (1993)	2++	Overaccommodation; Patronizing speech	Nursing	Australia	ANOVA
Kemper, Vandeputte, Rice, Cheung, & Gubarchuk (1995)	2++	Elderspeak	Psychology	U.S.	MANOVA; correlational analysis; repeated measures ANOVA
Kemper, Othick, Warren, Gubarchuk, & Gerhing (1996)	2++	Elderspeak	Psychology	U.S.	MANOVA; Correlational analysis; repeated measures ANOVA
Hummert, Shaner, Gartska, & Henry (1998)	2++	Patronizing talk/communication; Speech accommodations; Overly nurturing	Communication studies, Gerontology	U.S.	Doubly MANOVA; Categorical modeling procedures (goodness-of-fit statistics)
Kemper, Ferrell, Harden, Finter-Urczyk, & Billington (1998)	2++	Elderspeak	Psychology	U.S.	MANOVA; ANOVA
Kemper, Finter-Urcyzk, Ferrell, Harden, & Billington (1998)	2++	Elderspeak	Psychology	U.S.	MANOVA
Kemper, Othick, Gerhing, Gubarchuk, & Billington (1998)	2++	Elderspeak	Psychology	U.S.	MANOVA; ANOVA
Thimm, Rademacher, & Kruse (1998)	2++	Patronizing talk	Linguistics, Psychology	Germany	ANOVA; Bonferroni tests; univariate F-tests
Kemper & Harden (1999)	2++	Elderspeak	Psychology	U.S.	MANOVA; ANOVA; post-hoc Tukey honestly significant difference procedure
McGuire, Morian, Codding, & Smyer (2000)	2++	Elderspeak	Psychology	U.S.	Pearson correlational analysis; ANOVA; Tukey's Honestly Significant Differences
Caporael (1981)	2+	Baby talk	Psychology	U.S.	Correlational analysis; orthogonal planned comparisons; Pearson's product-moment correlation; stepwise multiple regression analysis
Culbertson & Caporael (1983)	2+	Baby talk	Psychology	U.S.	Random permutations; log-likelihood ratio chi square

Caporael & Culbertson (1986)	2+	Baby talk	Psychology	U.S.	Correlational analysis; contingency table
Hummert & Shaner (1994)	2+	Patronizing speech	Communication Studies, Gerontology	U.S.	Doubly MANOVA; ANOVA; chi square test of difference
Kemper (1994)	2+	Elderspeak; Speech accommodations	Psychology	U.S.	MANOVA; correlational analysis
Ryan, Maclean, and Orange (1994)	2+	Patronizing conversational style	Psychiatry, Gerontology	Canada	MANOVA; ANOVA; *t*-tests
Gould & Dixon (1997)	2+	Overaccommodative speech	Psychology	U.S.	ANOVA; planned and exploratory comparisons; Chi-square analyses; Hierarchical multiple regression analyses
Gould, Saum, & Belter (2002)	2+	Patronizing speech; Elderspeak	Psychology	U.S.	ANOVA; pairwise *t* tests; simple correlations; Fisher's test
O'Connor & St. Pierre (2004)	2+	Elderspeak	Psychology	Canada	Parallel analyses (eigenvalues); Principle components analyses; General Linear Model procedure; Bonferroni significant difference comparison
Melton & Shadden (2005)	2+	Patronizing speech	SLP	U.S.	Post-hoc pairwise Bonferroni procedures; Spearman rho correlation coefficients
Ashburn & Gordan (1981)	2-	Simplified register of baby talk	Linguistics	U.S.	Correlational analysis; MANOVA; Scheffé's method comparisons
Whitbourne, Culgin, & Cassidy (1995)	2-	Infantilizing speech	Psychology	U.S.	Repeated measures ANOVA; Post-hoc Scheffé tests
Ytsma & Giles (1997)	*2*-	Patronizing speech	Sociolinguistics	The Netherlands	Univariate t-test; Spearman correlation analysis

Brown & Draper (2003)	2-	Patronizing language; Overaccommodation	Nursing	U.K.	N/A
Lineweaver, Hutman, Ketcham, & Bohannon (2011)	2-	Elderspeak	Psychology	U.S.	Mixed model ANOVA
Sachweh (1998)	3	Secondary baby talk	German Language	Germany	N/A
Chye & David (2006)	3	Elderspeak	Linguistics	Malaysia	N/A

Note: QA= Quality Assessment; U.S.= United States; U.K.= United Kingdom; ANOVA= Analysis of Variance; MANOVA= Multivariate Analysis of Variance

Table 7: Participant Information

Author	QA	Older Participants	Young Participants	Disability
Cohen & Faulkner, 1986	2++	N=30 (62-82, M=68.2; all living at home; 15 males, 15 females)	N=30 (19-33; M=23.3; 15 males, 15 females)	N/A
Edwards & Noller, 1993	2++	N=40 (65-89, M=69.82; all community-dwelling alone or with family; all female)	40 first-year nursing students (17-42; M=20.8) 40 first-year psychology students (17-47, M=22.52)	N/A
Kemper, Vandeputte, Rice, Cheung, & Gubarchuk, 1995	2++	N=36 (60-84, M=72.0; 38% male; all living at home or with family)	N=36 (18-25, M=23.3, 46% male)	N/A
Kemper, Othick, Warren, Gubarchuk, & Gerhing, 1996	2++	N=37 (65-91, M=72.4; all living at home alone or with family; 38% males)	N= 37(18-25, M=22.2;42% males)	N/A
Hummert, Shaner, Gartska, & Henry, 1998	2++	N=40 (ages 69-94; M=77.05; all community-dwelling; 20 males, 20 females)	40 young (18-27; M= 20.03; 20 males, 20 females) 40 middle age (35-52; M=41.83; 20 males, 20 females)	Rated Golden Ager vs. Despondent older adult
Kemper, Ferrell, Harden, Finter-Urczyk, & Billington, 1998	2++	N=32 (64-84, M=71.9; 50% females, all living at home alone or with family)	N=32 (18-24, M=22; 50% female)	Spoke to impaired or unimpaired adult
Kemper, Finter-Urcyzk, Ferrell, Harden, & Billington, 1998	2++	N=30 (62-86; M=75.0; all living at home alone or with family; 63% females)	N= 30(18-26, M=22.4; 53% females)	N/A

Kemper, Othick, Gerhing, Gubarchuk, & Billington, 1998	2++	Experiment 1: N=50 (60-84, M=74.1; 64% female; all living at home or with family)	Experiment 1: N=10 (18-25, M=22.8; 80% female) Experiment 2: N=60 (18-26; M=23.4; 28 females, 32 males)	N/A
Thimm, Rademacher, & Kruse, 1998	2++	N/A	N=120 (22-28; 60 males, 60 females)	Spoke to competent and incompetent elderly adult, and age-only adult and young adult
Kemper & Harden, 1999	2++	Experiment 1: N=20 (M=73; all living at home or with family) Experiment 2: N=20 (M=73.2; all living at home or with family) Experiment 2: N=45 (M=72.5; all living at home or with family)	Experiment 1: N=20 (M=21.9) Experiment 2: N=20 (M=24.3) Experiment 3: N=45 (M=22.4)	N/A
McGuire, Morian, Codding, & Smyer, 2000	2++	N=169 (55-90; M=71.02; community-dwelling and living independently; 43 males, 126 females)	N/A	N/A
Caporael, 1981	2+	Field study: 15 care receivers (early 60's to late 90's; 6 males, 9 females)	Field Study: 9 nurses' aides Judgment Study 1: N=16 (9 females, 7 males; all undergraduate students) Judgment Study 2: N= 62 (all females; undergraduate psychology students)	Field study: care receivers differed in mobility, activity, talkativeness, physical health, and cognitive ability)

Culbertson & Caporael, 1983	2+	N=15 care receivers (early 60's to late 90's; 6 males, 9 females)	N= 9 nurses' aides	Care receivers differed in mobility, activity, talkativeness, physical health, and cognitive ability
Caporael & Culbertson, 1986	2+	Institution A- 45 care receivers (72-99) Institution B- 80 residents (62-100)	20 nurses' aides (10 at each institution)	Older adults differed in mobility, activity, talkativeness, physical health, and cognitive ability; Care receivers at Institution A in poorer health
Hummert & Shaner, 1994	2+	N/A	N= 30 (14 males, 16 females; undergraduate students)	Spoke to "Severely Impaired" and "Perfect Grandparent"
Kemper, 1994	2+	N/A	10 service providers (24-55; 5 females, 5 males) 10 caregivers (24-50; 8 females; 2 males)	Service providers interacted with healthy older adults Caregivers interacted with physically and cognitively impaired
Ryan, Maclean, & Orange, 1994	2+	N/A	120 volunteers (18-71, M=29.4; 61% female, 39% male) 50 care providers (22-63, M=40.8; 98% female, 2% female)	Rated speech to a physically disabled, cognitively intact elderly adult
Gould & Dixon, 1997	2+	N=82 females (M=71)	N=40 females (M=21)	N/A
Gould, Saum, & Belter, 2002	2+	N=70 (59-86, M= 71.1; 38 males, 32 females)	N=84 (19-32, M=20.9; 44 males, 40females)	N/A

O'Connor & St. Pierre, 2004	2+	131 community living (M=69.3; 64 females, 67 males); 28 nursing homes residents (M=83.3; 19 females, 9 males)	N/A	N/A
Melton & Shadden, 2005	2+	N/A	N=48 (18-35; all female, psychology students)	Gave instructions to young adult, older adult, hearing-impaired older adult and cognitively- impaired older adult)
Ashburn & Gordan, 1981	2-	N/A	N=20 (10 nursing staff, 10 volunteers)	Spoke to non-alert elderly adult, an alert elderly resident, and another staff member or volunteer
Whitbourne, Culgin, & Cassidy, 1995	2-	N=35 (64-94, M=77.09; 30 females, 5 males; 18 community-living, 17 institutionalized)	N/A	N/A
Ytsma & Giles, 1997	*2*-	N/A	N=80 Dutch students (18-25, M=20.6; 78 females, 2 males)	N/A
Brown & Draper, 2003	2-	N/A	N/A	N/A
Lineweaver, Hutman, Ketcham, & Bohannon, 2011	2-	1 confederate (75 years old)	N=40 undergraduate students (19-22, one 34; 23 females, 17 males) 1 confederate peer (19 years old)	N/A
Sachweh, 1998	3	N= 70 nursing home residents (62	N=33 nurses (25 females, 19-59, M=37; 8 males, 19-34,	Some resident were physically frail, some had

		females, 45-101; 8 males, 72-89)	M=24)	dementia
Chye & David, 2006	3	15-20 care receivers (56-90; diverse socioeconomic backgrounds)	3 caregivers in day-care center for adults (40's - 50's; all female)	Some care receivers have physical impairments

Note: Q.A. = Quality Assessment

Chapter 5

Discussion

Elderspeak has been shown to be a complex speech register and evidence suggests it appears in other cultures and geographical regions of the globe. In addition to the United States, elderspeak has also been studied in Canada, the United Kingdom, Germany, Malaysia, the Netherlands, and Australia. Elderspeak has also been an interdisciplinary topic of investigation. Elderspeak has been of particular interest, in both research and clinical practice, to the fields of linguistics, communication studies, speech-language pathology, nursing, medicine, psychology, and gerontology.

Elderspeak Terms

Elderspeak is one of the many terms used to describe the modified speech used with elderly adults that is different from speech between other adults. From the 28 studies chosen for the systematic review, the authors identified over 9 different terms used, including *simplified register of baby talk, baby talk, elderspeak, patronizing speech, overaccommodative speech, infantilizing speech, overly nurturing, simplified speech style*, and *secondary baby talk*. Several of the terms had multiple variations, such as patronizing speech, patronizing talk, patronizing communication, and patronizing conversational style, and overaccommodations, overaccommodative speech, and speech accommodations. Some studies also used multiple terms. The terms associated with each article can be found in Table 6. Elderspeak was the most frequently used term, being used in 13 of the 28 studies. The variations of patronizing speech were also frequently used, appearing in 10 of the 28 articles. Although used to refer to the same speech

pattern, the various terms imply different meanings about the appropriateness of elderspeak.

The different terms associated with elderspeak appear to represent different positive and negative feelings about the speech used towards elderly adults. The terms patronizing speech, secondary baby talk, and infantilizing speech have negative connotations, suggesting that the speech modifications made to elderly adults are perceived as condescending and inappropriate. The term overaccommodative speech is somewhat positive, suggesting that the speech towards a geriatric population is intended to be helpful in accommodating their needs but that the accommodation is excessive. In addition, the terms overaccommodative speech, patronizing speech, and similar variants are vague in that the age of the target audience is not implied. In comparison, the term elderspeak seems to be a middle ground and the meaning of the term is apparent. While the term suggests that the speech used with elderly adults is not the same as speech between other adults, it does not have any inherent positive or negative connotations. Although there are several names used to describe the speech to elderly adults, for the purposes of this systematic review, the authors decided to use the more neutral term elderspeak.

In addition, the studies examined primarily focused on the speech of young adults to older adults, although the ages of the participants varied from study to study. In many studies, the young adults were undergraduate college students (Caporael, 1981; Edwards & Noller, 1993; Hummert & Shaner, 1994; Ytsma & Giles, 1997; Melton & Shadden, 2005; Lineweaver, Hutman, Ketcham, & Bohannon, 2011). Others focused on the speech of caregivers or nurses, so the ages of the participants were slightly higher (Kemper,

1994; Ryan et al., 1994; Sachweh, 1998; Chye & David, 2006). In either case, the ages of the "young" adults did not exceed the 60's. An exception was the study by Ryan, Maclean, and Orange (1994), which did not distinguish between young and old participants; the volunteers ranged in age from 18-71. The majority of "older adults" were over 60 years of age, and in many cases, the average age was in the 70s (Kemper, Vandeputte, Rice, Cheung, & Gubarchuk, 1995; Kemper, Othick, Warren, Bugarchuk, & Gerhing, 1996; Hummert, Shaner, Gartska, & Henry, 1998; Kemper, Ferrell, Harden, Finter-Urczyk, & Billington, 1998; Kemper, Finter-Urcyzk, Ferrell, Harden, & Billington, 1998; Kemper, Othick, Gerhing, Gubarchuk, & Billington, 1998; Kemper & Harden, 1999; McGuire, Morian, Coddlin, & Smyer, 2000; Gould & Dixon, 1997; Gould, Saum, & Belter, 2002; Whitbourne, Culgin, & Cassidy, 1995). Based on these ages, "young" adults do not necessarily have to be very young to use elderspeak although older adults are typically thought of as being at least over 60 years old.

This systematic review provided some evidence to suggest that the term the author(s) selected to describe the speech directed to their geriatric participants reflected the investigation's findings. For example, studies that found the modified register used with older adults to be harmful tended to use the terms *overaccommodation*, *patronizing speech*, or a variation of these terms that have a negative undertone (Edwards & Noller, 1993; Ryan et al., 1994; Hummert & Shaner, 1994; Gould & Dixon, 1997). In contrast, many of the studies reporting beneficial or both beneficial and negative qualities used the term *elderspeak* (Cohen & Faulkner, 1986; Kemper et al., 1995; Kemper, Othick, Warren, Gubarchuk, & Gerhing, 1996; Kemper et al., 1998c; Kemper & Harden, 1999; McGuire, Morian, Codding, & Smyer, 2000; O'Connor & St. Pierre, 2004).

Features of Elderspeak

In order to determine whether young or younger adults modify their speech to older adults, the studies reviewed used different methods. Some studies analyzed a particular communicative setting such as the speech between nurses and residents of health facilities (Caporael, 1981; Culbertson & Caporael, 1983; Caporael & Culbertson, 1986; Kemper, 1994), while others analyzed the speech between young adults and older adults during a specific task (Kemper et al., 1995; Kemper et al., 1996; Kemper et al., 1998c; Kemper, Finter-Urczyk, Ferrell, Harden, & Billington, 1998). Some studies used hypothetical situations such as how young adults thought they would speak to an older adult based upon a photograph (Hummert & Shaner, 1994; Hummert et al., 1998; Kemper et al., 1998a) or a written description (Thimm, Rademacher, & Kruse, 1998; Melton & Shadden, 2005). In addition, some studies examined how the speech used by young adults varied if the elderly person appeared impaired as compared to an elderly person without evidence of impairment (Hummert & Shaner, 1994; Kemper, Finter-Urczyk, Ferrell, Harden, & Billington, 1998; Kemper et al., 1998a; Melton & Shadden, 2005). No matter how the study was conducted, the overall consensus was that young adults modify their speech when talking to older people. Only one study (Melton & Shadden, 2005) found no differences in linguistic features between partners when young adults spoke to other young adults, older adults, hearing-impaired older adults, and cognitively-impaired older adults.

Although Melton and Shadden (2005) found no difference in the speech to different partners, other studies suggested that the speech to impaired elderly adults was different from the speech to unimpaired elderly adults. Some studies reported that the

characteristics of the elderly adults did not influence the speech of young adults; elderspeak was used with all elderly adults (Kemper, 1994; Thimm et al., 1998). The authors found some preliminary evidence, however, that the elderspeak to impaired elderly adults was different from the elderspeak to unimpaired elderly adults. Kemper, Ferrell, Harden, Finter-Urczyk, and Billington (1998) discovered that the speech to impaired elderly adults was a more exaggerated form of elderspeak, including shorter sentences and more repetitions and expansions. Thimm, Rademacher, and Kruse (1998) reported that more modifications were made to elderly adults who were negatively characterized while Hummert and Shaner (1994) described more condescending than affirming messages directed toward adults with severe impairments. When comparing two institutions, Caporael and Culbertson (1986) found that elderspeak was used at a skilled-nursing facility where the residents were in poorer health than those at a health-related facility. At the health-related facility they studied, virtually no elderspeak was used. Based on these finding and those of O'Connor and St. Pierre (2004), who found that residents of nursing homes received more elderspeak than community-dwelling elderly adults, there is preliminary evidence that setting influences elderspeak use. Even when elderly adults with no impairments are in a hospital setting, they receive more elderspeak than those in a community-living setting (Hummert et al., 1998).

Over time, the literature seems to have changed in how the speech of young adults was analyzed. Some of the very first studies of elderspeak focused on a single feature, such as intonation or average sentence length (Caporael, 1981; Culbertson & Caporael, 1983). Later studies examined more linguistic components, such as rate, grammatical complexity, utterance length, number of words and utterances, and repetitions.

Elderspeak was not limited to these paralinguistic features, however. The content and intent of the speech to elderly adults were also found to differ (Caporael & Culbertson, 1986; Thimm et al., 1998; Melton & Shadden, 2005).

A series of studies by Kemper and her colleagues that used a referential communication task to examine the features of elderspeak revealed some consistent results regarding how young adults modify their speech. These studies discovered that young adults used a slower speaking rate and shorter utterances and reduced grammatical complexity by using fewer clauses (Kemper, 1994; Kemper et al., 1995; Kemper et al., 1996; Kemper et al., 1998c). More instructions, more repetitions and fewer propositions were also consistently identified (Kemper et al., 1996; Kemper et al., 1998c; Kemper, Finter-Urczyk, Ferrell, Harden, & Billington, 1998; Kemper et al., 1998a).

Some controversy exists with regard to the use of pitch in elderspeak. Caporael (1981) found higher pitch and greater pitch variations to distinguish elderspeak from other speech registers. Similarly, Ryan, Maclean, & Orange (1994) found that a written form of elderspeak was *heard* by readers as having a higher and more shrill pitch. A study by Kemper and her colleagues (1995), however, found that young adults did not use a higher pitch or variations in pitch when completing a referential communication task with older adults. These findings suggest that features often widely believed to be a part of elderspeak (such as high pitch) may not necessarily be universal.

In summarizing the findings of the studies examining features of elderspeak, it was clear that elderspeak is a complex speech register. It consists of many different features that may or may not be used at any given time. Young adults also do not simply

change the prosody, intonation, and complexity of their speech; they often modify the content and intent of the speech, as well.

Table 8 lists, in chronological order, the articles that investigated the features of elderspeak. Only the studies that were rated 2++ or 2+ were included. The table also provides information about the type of interaction between young and older adults used during the study and the features of elderspeak identified in that study.

Table 8: Features of Elderspeak

Authors	QA	Interaction Type	Features of Elderspeak
Caporael (1981)	2+	Interactions between nurses' aides and residents	- Higher pitch - Greater pitch variability
Culbertson & Caporael (1983)	2+	Interactions between nurses' aides and residents	- Average sentence length of baby talk shorter than speech between caregivers
Caporael & Culberston (1986)	2+	Interactions between nurses' aides and care receivers	- "Question" is the most common mode of speech to elderly adults both in baby talk and non-baby talk
Kemper (1994)	2+	Interactions between service providers/caregivers and elderly adults	- Slower speaking rate - Shorter utterances - Reduced complexity- fewer clauses and left-branching clauses - More fillers - More sentence fragments - Fewer cohesive ties - Fewer longer words - Longer pauses
Hummert & Shaner (1994)	2+	Young adults' speech elicited by photographs of elderly adults	Speech to severely-impaired elderly contained: - Fewer distinct arguments - Shorter utterances
Ryan, Maclean, & Orange (1994)	2+	Participants read a script of an interaction between a nurse and a nursing home resident	Elderspeak version of the script was rated as: - More high pitch and shrill - More exaggerated intonation and pronunciation
Kemper, Vandeputte, Rice, Cheung, & Gubarchuk (1995)	2++	Speech between young and elderly adults during referential communication task with maps	- Slower speaking rate - Shorter utterances - Reduced complexity- decreased number of left- and right-branching clauses - More varied vocabulary (increased TTR) - Lower propositional density - More instructions - More repetitions - More tag questions - Didn't use higher pitch register or greater range of intonation - Didn't use diminutives
Kemper, Othick, Warren, Gubarchuk,	2++	Speech between young and elderly adults during referential	- Slower speaking rate - Shorter utterances (decreased MLU)

& Gerhing (1996)		communication task with maps	- Produced more total words and utterances - Reduced overall grammatical complexity (reduced MCU- Decreased left- and right-branching clauses) - Lower propositional density - More instructions - More repetitions - More location checks
Hummert, Shaner, Gartska, & Henry (1998)	2++	Young adults' speech elicited by photographs and written descriptions of elderly adults	Nurturing messages: - More questions than affirming and directive messages - Lower TTR than affirming and directive messages Directive messages: - More negative words than affirming messages Affirming messages: - More words per utterance than directive messages - More clauses per utterance than directive messages
Kemper, Othick, Gerhing, Gubarchuk, & Billington (1998)	2++	Speech between young and elderly adults during referential communication task with maps	With practice - Used shorter utterances - More sentence fragments - Slower speaking rate - Reduced complexity (Decreased MCU- Fewer left- and right-branching clauses) - Increased percentage of main clauses - Decreased propositions - More instructions - More repetitions
Kemper, Finter-Urczyk, Ferrell, Harden, & Billington (1998)	2++	Speech between young and elderly adults during referential communication task with maps; older adults simulated dementia	With demented adults (instructions were longer, more informative, more repetitious) - Used more words, utterances, and fragments - Produced fewer propositions per 100 words - More instructions - More expansions - More repetitions - More location checks - More backchannel affirmatives - More likely to use inclusive "we" - Didn't differ in MLU, speech rate, prosody, or main vs. embedded clauses (prosody or grammatical complexity didn't change)

Kemper, Ferrell, Harden, Finter-Urczyk, & Billington (1998)	2++	Young adults' speech elicited by photographs of elderly adults	To impaired listeners - Reduced sentence length and propositional density - Increased number of words and sentences - More instructions - More location checks - More expansions - More repetitions
Thimm, Rademacher, & Kruse (1998)	2++	Young adults' speech elicited by written descriptions of elderly adults	- Talked more about age-related topics and deficits - More often requested feedback - More often used praise
Melton & Shadden (2005)	2+	Young adults provided instructions for using a remote control based on written description of partner (young adult, older adult, hearing-impaired older, and cognitively-impaired older)	- No differences in linguistic measures for different partners - Number of task-minimizing comments increased from young adult to older adult to hearing-impaired older adult to cognitively-impaired older adult

Note: Q.A.= Quality Assessment; TTR= Type-Token Ratio; MLU=Mean Length of Utterance; MCU= Mean Clause per Utterance

Beneficial/Harmful Consequences

Elderspeak has often been used to accommodate the perceived communication needs of elderly adults, and several studies have shown that elderspeak can improve an elderly adult's abilities to follow directions (Kemper et al., 1995; Kemper et al., 1996; Kemper et al., 1998c; Kemper & Harden, 1999) and recall information (Gould & Dixon, 1997; McGuire et al., 2000; Gould et al., 2002). However, the literature suggested that while elderspeak may have improved comprehension and recall abilities, it may not have done so without cost, as older adults often reported perceiving themselves as having more communication problems when receiving instructions in elderspeak (Kemper et al., 1995; Kemper et al., 1996; Kemper et al., 1998c; Kemper, & Harden, 1999).

Some variation was noted in both how elderspeak and the speakers who used it were perceived. Sometimes elderspeak was perceived positively, as more comforting (Caporael, 1981), more caring and kind (Gould et al., 2002), and more clear than other versions of speech (Gould & Dixon, 1997; O'Connor & St. Pierre, 2004). In contrast, at other times elderspeak was perceived as patronizing (Edwards & Noller, 1993; Gould et al., 2002) and disrespectful (Gould et al., 2002). Those speakers who used elderspeak were typically perceived negatively, whereas people who used a more neutral register of speech were viewed in a more positive light (Gould & Dixon, 1997). Adjectives used to rate the persons who used elderspeak included less respectful and less nurturing (Ryan et al., 1994) Although the literature reviewed did not focus on the perceptions or reactions of elderly adults to elderspeak, some evidence suggested that young and elderly adults react differently to elderspeak. While they still typically perceived it as patronizing,

elderly adults occasionally rated elderspeak more positively than young adults (Edwards & Noller, 1993; O'Connor & St. Pierre, 2004).

Several aspects of elderspeak were reviewed by the studies in this systematic review. This made it difficult to distinguish the potential benefit or harm of each specific feature. There was, however, some evidence to suggest changes in prosody may be more harmful than helpful. High pitch was negatively rated by participants (Edwards & Noller, 1993) and was found to lead to more difficulty following directions and to older adults' reporting more communication problems (Kemper & Harden, 1999). Caporael (1981) also found that there is no difference between the pitch used with children and the pitch used with elderly adults. These finding suggest that this feature was perhaps too child-like to be accepted by elderly adults.

In addition to prosody, a series of studies conducted by Kemper and her colleagues found consistent results for several elderspeak features. Earlier studies by Kemper found that the combination of more words and utterances, shorter sentences, and a slower rate of speech improved the ability of older adults to follow directions (Kemper et al., 1995; Kemper et al., 1996). A later study (Kemper & Harden, 1999), however, looked at the features individually. The results found that semantic elaborations (more repetitions and expansions) and decreasing the mean clauses per utterance by reducing the number of clauses helped improve older adults' abilities to follow directions. Slower speech, shorter sentences, and high pitch did not lead to significant improvements. Due to the contradictions in results for slow rate of speech, it was not clear if this feature was beneficial or not. Stress was another feature that was not definitively beneficial or harmful. Exaggerated stress on key words was found to be helpful when it was the only

feature being studied (Cohen & Faulkner, 1986), but when it was combined with other prosodic features, the elderly adults' abilities to follow directions were impaired (Kemper & Harden, 1999).

Several studies were conducted by having young adults provide messages to hypothetical partners in order to examine features of elderspeak; however, the studies did not determine if the messages were beneficial or harmful (Hummert, Shaner, Garstka, & Henry, 1998; Kemper et al., 1998; Thimm et al., 1998; Melton & Shadden, 2005).

Table 9 lists the articles that identified beneficial or harmful features of elderspeak. Only the studies that were rated as 2++ or 2+ were included. The table provides information about the features of elderspeak studied and the conclusions as to its benefits or harmfulness. The articles that identified beneficial features are listed first, followed by the articles that identified harmful features, and then the articles that identified both beneficial and harmful features.

Table 9: Beneficial/Harmful Features of Elderspeak

Authors	QA	Beneficial/Harmful	Features of Elderspeak (if applicable)	Results
Caporael (1981)	2+	Beneficial	Intonation	More comforting, less arousing, and less irritating
Cohen &Faulkner (1986)	2++	Beneficial	Exaggerated stress	Exaggerated stress placed on key words improved comprehension and recall of older adults. Focal stress was not perceived as patronizing
McGuire, Morian, Codding, & Smyer (2000)	2++	Beneficial	Slower rate of speech, exaggerated intonation, stress placed on words and phrases	Elderspeak version of instructions helped older adults recall medical instructions better and for a longer period of time Elderspeak and note-taking improved older adults' recall of medical instructions
O'Connor & St. Pierre (2004)	2+	Beneficial	Written text- some words bolded and in all uppercase font, terms of endearment, tag question	Elderspeak version perceived as clearer than normal Older adults perceived elderspeak to be warmer and less superior Nursing home residents perceived elderspeak as warmer and less superior than community-living participants
Edwards & Noller (1993)	2++	Harmful	Exaggerated intonation High pitch Touch Terms of endearment	Elderspeak was perceived as patronizing by all participants—elderly adults, future nurses, and uninvolved observers. The combination of the expression "That's a good girl" and rising pitch were consistently rated negatively.
Ryan, Maclean, & Orange	2+	Harmful	Nonverbal behaviors	Negative nonverbal behaviors rated as more

(1994)			Elderspeak version contained imperatives and directives, yes-no tag questions, terms of endearment, no response to elderly adults' concerns or explanation of reason behind request	likely to occur with elderspeak. Positive nonverbal behaviors rated as less likely to occur with elderspeak. Nurse using elderspeak was rated as less respectful and less nurturing in some contexts
Hummert & Shaner (1994)	2+	Harmful		More messages to Severely-Impaired elderly adult were condescending than affirming
Kemper, Vandeputte, Rice, Cheung, & Gubarchuk (1995)	2++	Beneficial and Harmful		Shorter sentences, more words and utterances, and slower rate of speech improved older adults' accuracy Older adults reported more communication problems with young adults using elderspeak
Kemper, Othick, Warren, Gubarchuk, & Gerhing (1996)	2++	Beneficial and Harmful		Slower rate of speech, shorter sentences, more words and utterances, fewer clauses per utterance, lowered propositional density, more instructions, repetitions, and location checks improved older adults' accuracy Shorter sentences, slower rate of speech, higher pitch, and repeated instructions led to older adults reporting more communication problems
Gould & Dixon (1997)	2+	Beneficial and Harmful	Elderspeak version contained exaggerated intonation; simple, repetitive sentence structure; simple vocabulary; expansions; more questions and directives; explicit and redundant speech	Elderspeak improved the recall of medical instructions by older women with higher working memory in both immediate and delayed recall Elderspeak rated as clearer, simpler, and slower than neutral version Participants preferred speaker of neutral

				version of instructions and rated the speaker more positively than elderspeak speaker
Kemper, Othick, Gerhing, Gubarchuk, & Billington (1998)	2++	Beneficial and Harmful		Elderspeak during the first referential communication task improved older adults' accuracy. After practice, modified version of elderspeak did not improve accuracy. Modified version of elderspeak after practice lead to lower ratings of older adults' communication competency.
Kemper & Harden (1999)	2++	Beneficial and Harmful	Syntactic complexity (shorter sentence length with reduced embedded clauses; shorter sentences with embedded or subordinate clauses; longer sentences with no clauses) Semantic elaborations (more expansions, repetitions, and location checks) Exaggerated prosody (stressed words, slower rate of speech, clear enunciation, high pitch)	Semantic elaborations (more repetitions, expansions, and location checks) improved older adults' abilities to follow directions Decreased MCU (eliminating subordinate and embedded clauses) improved older adults' abilities to follow directions when no exaggerated prosody was used Exaggerated prosody (high pitch and slow rate of speech) impaired older adults' abilities to follow directions and led to more self-reported communication problems Reduced MLU had little effect on older adults' abilities to follow direction and led to more self-reported communication problems Syntactic simplifications improved older

				adults' abilities to follow directions but led to more self- reported communication problems
Gould, Saum, & Belter (2002)	2+	Beneficial and Harmful	Careful intonation, grammatically simple sentences, repetitive sentence structure, simple vocabulary, tag questions, explicit speech, directives	Older adults recalled medical instructions better when elderspeak was used Elderspeak version perceived as more caring and kind Elderspeak version perceived as patronizing and disrespectful

Note: Q.A.= Quality Assessment

Recommendations

There was no definitive conclusion that elderspeak, in total, was either beneficial or harmful. Instead, there was evidence to suggest it includes both beneficial and harmful features. The studies reviewed examined a variety of the features that were characteristic of elderspeak. Because of this variety, absolute conclusions as to the individual features that were *always* considered features of elderspeak were prohibited as well. However, this systematic review did provide preliminary evidence to assert that elderspeak should not be regarded as completely negative. The literature suggests that using repetitions, elaborations, and simple sentences can help older adults remember information better and follow directions, but also cautions that speakers should be particularly careful about using a high, widely varying pitch.

In addition, it should be recognized that, although some features of elderspeak may have been helpful, and elderspeak may have been perceived as clearer or more caring, the manner in which it has been perceived was as patronizing and disrespectful. This leaves the question—Is it worth the risk of offending elderly adults to help them remember information and follow directions by using a form of speech that they do not like or appreciate?

Future Implications

The current systematic review focused on identifying the main features of elderspeak as it is used with the general population of elderly adults. Further, the review sought to identify which of these features may have been of benefit or harm to the exchange of information. There are, however, additional aspects of elderspeak that warrant examination. Preliminary research showed that elderly adults find elderspeak to

be patronizing, while also finding it more comforting. The literature search for this systematic review revealed a large number of articles relating to specific populations of elderly persons and to their perceptions of elderspeak. This additional body of literature, while exceeding the boundaries of the current review, warrants careful review in the near future. Of particular interest would be the research addressing a possible relationship between the use of elderspeak and resistiveness to care in people with dementia. Perhaps this will add to the evidence that, while intended to help with communication and completing personal activities, elderspeak used with this population may actually lead to resistance to help.

Finally, future research should focus on the remediation or intervention of elderspeak. It would be useful to identify if any training or educational programs on elderspeak have been conducted and if they have been successful in helping speakers reduce elderspeak features that are detrimental. As this systematic review has revealed, not all features of elderspeak should be eliminated. Training programs, however, could teach healthcare professionals and caregivers of various disciplines and cultures about the features of elderspeak that do not improve communication with elderly adults or are considered patronizing.

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Appendix A

Checklist for Inclusion/Exclusion of Article

____ Not exclusively intervention/training

____ Available in English

____ Not book/chapter/review

____ Not exclusively dementia patients

____ States elderspeak/patronizing speech/secondary baby talk

____ States beneficial/harmful aspects of elderspeak

____ States characteristics of elderspeak used by speakers

____ Fits SIGN Checklist

- ____ Appropriate, clearly focused question
- ____ Main characteristics of patient population
- ____ Outcomes clearly defined
- ____ Reliability information reported
- ____ Validity information reported

Appendix B

METHODOLOGY CHECKLIST
(Modified and adapted from SIGN Methodology Checklist 1: Systematic Reviews and Meta-analyses; Checklist 2: Randomised Controlled Trials; and Checklist 3: Cohort Studies)

Study identification (include authors, title, year of publication, journal title, volume, inclusive pages):
_____
_____

Guideline topic:_____ **Key question number:**_____

Checklist completed by:_____ **Study Design:** _____ **Level:** ____

SECTION 1: INTERNAL VALIDITY			
In a well conducted study:		***In this study the criterion:***	
1.1	The study addresses an appropriate and clearly focused question.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.2	A description of the methodology used is included.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.3	The assignment of subjects to treatment groups is randomized.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.4	The treatment and control groups are similar at the start of the trial.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.5	All relevant outcomes are measured in a standard, valid, and reliable way.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
SELECTION OF SUBJECTS			
1.6	The two groups being studied are selected from source populations that are comparable in all respects other than the factor under investigation.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.7	The study indicates how many of the people asked to take part did so, in each of the groups being studied.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.8	What percentage of individuals or clusters recruited into each arm of the study dropped out before the study was completed.		
1.9	Comparison is made between full participants and those lost to follow up, by exposure status.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
ASSESSMENT			
1.10	The outcomes are clearly defined.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable

1.11	The assessment of outcome is made blind to exposure status.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.12	Where blinding was not possible, there is some recognition that knowledge of exposure status could have influenced the assessment of outcome.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.13	Evidence from other sources is used to demonstrate that the method of outcome assessment is valid and reliable.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
CONFOUNDING			
1.14	The main potential confounders are identified and taken into account in the design and analysis.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
STATISTICAL ANALYSIS			
1.15	Confidence intervals are provided	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
SECTION 2: OVERALL ASSESSMENT OF THE STUDY			
2.1	How well was the study done to minimize the risk of bias or confounding, and to establish a causal relationship between exposure and effect? *Code ++, +, or -*		
2.2	Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the exposure being investigated?		
2.3	Are the results of this study directly applicable to the patient group targeted in this guideline?		

SECTION 3: DESCRIPTION OF THE STUDY (Note: The following information is required for evidence tables to facilitate cross-study comparisons. Please complete all sections for which information is available). PLEASE PRINT CLEARLY		
3.1	How many participants are included in this study? *List the number in each group separately.*	
3.2	What are the main characteristics of the study population? *Include all relevant characteristics – e.g. age, sex, ethnic origin, comorbidity, disease status/diagnosis, education, technology experience, community/hospital based.*	

3.3	What environmental or prognostic factor is being investigated in this study?	
3.4	What comparisons are made in the study? *Are comparisons made between presence or absence of an environmental / prognostic factor, or different levels of the factor?*	
3.5	For how long are patients followed-up in the study?	
3.6	What size of effect is identified in the study? *List all measures of effect in the units used in the study – e.g. absolute or relative risk. Include p values and any confidence intervals that are provided.* ***Note****: Be sure to include any adjustments made for confounding factors, differences in prevalence, etc.*	
3.7	How was this study funded? *List all sources of funding quoted in the article, whether government, voluntary sector, or industry.*	

3.8	Does this study help to answer your key question? *Summarize the main conclusions of the study and indicate how it relates to the key question.*	
3.9	How were participants selected for this study?	
3.10	What term is used to describe the speech used towards the elderly? *(e.g. elderspeak, patronizing speech, secondary baby talk, etc.)*	
3.11	What are the characteristics of the speech used towards the elderly?	
3.12	What are the conclusions about the speech used towards the elderly? *(e.g. beneficial/harmful)*	

3.13	What reliability data is included in the study?	
3.14	What validity data is included in the study?	

Appendix C

METHODOLOGY CHECKLIST: SYSTEMATIC REVIEWS AND META-ANALYSES

Study identification (include authors, title, year of publication, journal title, volume, inclusive pages):

_____

_____

Guideline topic:_____ **Key question number:**_____

Checklist completed by:_____ **Study Design:** _____ **Level:** ____

SECTION 1: INTERNAL VALIDITY		
In a well conducted systematic review:		***In this study the criterion:***
1.1	The study addresses an appropriate and clearly focused question.	Well covered Not addressed Adequately addressed Not reported Poorly addressed Not applicable
1.2	A description of the methodology used is included.	Well covered Not addressed Adequately addressed Not reported Poorly addressed Not applicable
1.3	The literature search is sufficiently rigorous to identify all the relevant studies.	Well covered Not addressed Adequately addressed Not reported Poorly addressed Not applicable
1.4	Study quality is assessed and taken into account.	Well covered Not addressed Adequately addressed Not reported Poorly addressed Not applicable
1.5	There are enough similarities between the studies selected to make combining them reasonable.	Well covered Not addressed Adequately addressed Not reported Poorly addressed Not applicable
SECTION 2: OVERALL ASSESSMENT OF THE STUDY		
2.1	How well was the study done to minimize bias? *Code ++, +, or -*	
2.2	If coded as +, or - what is the likely direction in which bias may affect the study results?	

SECTION 3: DESCRIPTION OF THE STUDY PLEASE PRINT CLEARLY		
3.1	What types of study are included in the review? (Highlight all that apply)	RCT CCT Cohort Case-control Other
3.2	How does this review help to answer your key question? *Summarise the main conclusions of the review and how it related to the relevant key question. Comment on any particular strengths or weaknesses of the review as a source of evidence for a guideline produces for the NHS in*	

	Scotland.	