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Elderspeak Communication: Impact on Dementia Care

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Abstract

Resistiveness to care (RTC) is common in older adults with dementia. RTC disrupts nursing care, increasing costs of care by 30%. Elderspeak (infantilizing communication used by nursing staff) may trigger RTC in individuals with dementia. Videotaped care episodes (N=80) of nursing home residents with dementia (N=20) were coded for type of staff communication (normal talk and elderspeak) and subsequent resident behavior (cooperative or RTC). Bayesian statistical analysis tested relationships between staff communication and subsequent resident RTC. The probability of RTC varied significantly with communication (Bayes $p = .0082$). An increased probability of RTC occurred with elderspeak (.55, CrI = .44 – .66), compared to normal talk (.26, CrI = .12–.44). Communication training has been shown to reduce elderspeak and may reduce RTC in future research.

Keywords

Dementia care; communication; resistiveness to care; nurse-patient interaction; elderspeak

INTRODUCTION

Nursing staff extensively use elderspeak (infantilizing communication) in conversations with older adults in long term care (LTC) settings, especially during care providing activities of daily living (ADL).¹ Research documents that elderspeak is perceived as patronizing and can precipitate communication breakdown and problem behaviors for cognitively intact elders.^{2, 3} In contrast, some social scientists promote the use of components of elderspeak to improve communication and cooperation in dementia care.^{4, 5} This study explored how LTC residents with dementia respond to nursing staff elderspeak communication, a measurable speech style similar to baby talk. The study aims were to determine the magnitude and direction of elderspeak effects on the behavior of persons with dementia and when it might comfort⁶ or contribute to problem behaviors.⁷

Observational studies of nursing care for persons with dementia demonstrate that staff communication frequently precipitates problem behaviors.^{8, 9} Such problem behaviors include measurable aggression, withdrawal, vocal outbursts, and wandering which occur in 75–90% of persons with dementia. These resistive problem behaviors result in disrupted care, adding

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to nursing stress, burnout, and turnover, and increase costs of care.^{10, 11} Interventions to improve aspects of selected aspects of nursing communication have successfully reduced problem behaviors in dementia care.^{12–14} Reduction in staff elderspeak in previous studies has resulted in improved communication rated as less patronizing and more affirming.^{1, 15}

This study used psycholinguistic, observational, and behavioral analyses to examine relationships between nursing staff elderspeak communication and resistiveness to care (RTC) behavior¹⁶ of LTC residents with dementia. Video recordings of 80 nursing staff-resident interactions during ADLs were collected and analyzed to determine relationships between nursing staff elderspeak communication and resident RTC behavior. Frame-by-frame behavioral coding of nursing staff communication and resident RTC behavior tested the temporal relationships and probabilities of resident RTC following nursing staff communication (coded as elderspeak, normal talk, or silence).

BACKGROUND INFORMATION

Resident behaviors that disrupt nursing care, such as aggression, agitation, and wandering, are common in dementia, progress over the disease course, and precipitate nursing home placement¹⁷. It is estimated that these disruptive behaviors increase costs of providing nursing care by 25–35 %.^{9, 10} Although a general link between communication and RTC behavior has been established,^{8, 9} nursing interventions to optimize communication in dementia care remain anecdotal.¹⁸ Evidence-based communication strategies that minimize resident disruptive behaviors in dementia care are needed.

Elderspeak and dementia care

Elderspeak is an intergenerational communication style that is common in interactions between staff and residents in LTC settings.^{1, 19} Elderspeak (i.e. infantilization, or secondary baby talk) features simplistic vocabulary and grammar, shortened sentences, slowed speech, elevated pitch and volume, and inappropriately intimate terms of endearment.^{19, 20}

Features of elderspeak include diminutives, inappropriately intimate nominal references such as “honey” and “good girl.” Collective (plural) pronouns substitute the plural reference when a singular form is grammatically correct and imply that the older adult cannot act independently. For example, “Are *we* [italics added] ready for *our* [italics added] bath?” Tag questions prompt resident responses, thus suggesting the resident’s inability to independently choose. “You want to get up now, *don’t you* [italics added]?” Very short sentence length, is used as a strategy to simplify speech and simplified vocabulary and grammar are also common modifications in elderspeak communication.^{3, 20}

Ryan and colleagues²¹ describe how elderspeak derives from stereotypical views of older adults as less competent than younger adults and how elderspeak projects these stereotypes on elders. When younger adults talk with elders, they simplify speech and alter the emotional tone (underlying affective quality of messages).^{3, 22} The implicit message of incompetence then begins a negative downward spiral for older persons, who react with decreased self-esteem, depression, withdrawal, and the assumption of dependent behaviors.²¹

Kemper and Harden² confirmed that cognitively intact older adults have negative perceptions of elderspeak. Older adults who listened to directions for completing a task (spoken using elderspeak) reported that the communication was patronizing, demeaning, and made comprehending the instructions difficult. The older adults who received directions using elderspeak were no more accurate in the requested task than those who received elderspeak free directions. Although elderspeak may be intended to promote effective communication and show caring, research demonstrates that it fails to accomplish these goals.²

Implicit messages of elderspeak may be especially threatening to the maintenance of self concept and personhood, critical to the wellbeing of individuals with dementia.^{23, 24} Elderspeak may conflict with positive self concept that older adults with dementia struggle to maintain.²⁵ Elderspeak also may challenge the personae or face presentation of self, constructed and maintained through interactions with other people.²⁶

In contrast, some dementia care investigators and clinicians suggest that aspects of elderspeak can improve resident cooperation. For example, Sloane and colleagues²⁷ advocate staff use of familial forms of address such as “papa” to comfort care recipients with dementia; Small²⁵ found the use of collective pronoun substitutions effective in gaining cooperation with caregiving activities, and Orange and Colton-Hudson⁴ recommend simplification of grammar and vocabulary, slow rate, and accentuated pitch to improve the ability of the person with dementia to understand spoken communication. O’Connor and Rigby⁶ found that some elders value the warmth and succorance of elderspeak.

A link between problem behavior and communication has been established by observational studies demonstrating that nursing communication precipitates problem behaviors,⁸ and that targeted nursing interventions can reduce problem behaviors.^{14, 28, 29} One study of resident characteristics and behavior management strategies implicated impaired communication as the primary predictor of physical and verbal aggression.⁹

Conceptual Framework

The model of Need-driven Dementia-compromised Behavior³⁰ describes how behavior reflects unmet needs of a person with dementia. In this model fixed (unchangeable) and proximal (modifiable) factors interact to lead to problem behaviors. Although fixed factors including personal characteristics and abilities, psychotropic drug use, cognition, and functional status contribute to problem behaviors;³¹ proximal needs for social interaction may be modified through effective nursing communication to prevent or reduce problem behaviors.

Recognizing the role of communication in problem behaviors, a variety of interventions targeting different staff communication skills have been successful in increasing behavior management in dementia care.^{12, 13, 27, 32, 33} Although these studies did not focus on elderspeak, staff were trained in communication strategies such as reorientation, distraction, positive feedback, and use of memory aids to test assumptions of “what works” in dementia care.

METHODS

Psycholinguistic, observational, and behavioral analyses were conducted to examine relationships between elderspeak communication and subsequent RTC in this study of ADL care, when elderspeak and RTC frequently occur.^{29, 34, 35} Eighty caregiving interactions between nursing staff and residents with dementia (N = 20) were video recorded and computer-archived for analysis. Each interaction was transcribed and coded for psycholinguistic markers of elderspeak communication. Counts of elderspeak were analyzed in relation to RTC scale scores (a measure of amount and intensity of resident RTC behavior). Computerized frame-by-frame sequential analyses linking staff communication and subsequent resident cooperative or RTC behaviors were performed. Nonverbal behavioral features of elderspeak were also measured in temporal relation to RTC behavior.

Videotaping supports exact observation of behaviors, consistent coding, and measurement of duration, intensity, and patterns of behavior, and permits repeated review to verify reliability. Complex and simultaneous behaviors, sequences of behaviors, and interrelationships between behaviors can be analyzed from behavioral coding of video recordings.³⁶ Coding videotaped

data also overcomes recall inaccuracies in staff ratings of resident behaviors, and influences of prior resident relationships, stress, general well being.¹¹ Limitations include alteration of natural behaviors due to awareness of recording and inability to control other factors (past relationships, physical conditions, mood, and environmental).³⁶ These limitations can be minimized by discarding initial segments of recordings.

Sample

Videotaped interactions (N=80) between nursing staff (N=52) and residents with dementia (N=20) during ADL care provided the sample for this study. Residents and nursing staff (primarily CNAs) from three participating dementia care facilities were recruited and gave written permission per IRB approval for videorecordings during bathing, eating or oral care, dressing, and other ADL activities.

Procedures

Following approval of the Protection of Human Subjects by the University Institutional Review Board, residents were recruited from three LTC facilities that provide dementia care. Consent was obtained from the surrogate decision maker of each resident participant, from staff participants, with verbal assent from resident participants themselves. Meetings describing the study and inviting staff participation were held.

Descriptive data was extracted from the resident's medical record, including age, gender, race/ethnicity, marital status, and psychotropic medication use. Minimum Data Set (MDS) information on functional status, ADL support provided, as well as cognitive abilities was also collected. The MDS-COGs score was computed for each participant using MDS data as a measure of cognition.³⁷

The mean age of residents in our sample was 82.9 years with a range of 69–97. Five (25% were male) and one (5%) was African American; the remaining subjects were Caucasian women. ADL functional score ranged from 7 – 52 in our twenty subjects with a mean of 29.6. Higher scores indicate greater dependency. MDS-COGs scores in our sample ranged from 4–9 with a mean of 6.4, indicating a relatively homogeneous sample in the moderate stage of dementia.

Nursing staff who were assigned to participating residents on days of recording were recruited to be included in the ADL care video recordings. Out of 55 nursing staff invited to participate, 52 consented and were included. Three declined due to not wishing to be video recorded. Staff participants were primarily (78%) certified nursing assistants (NAs) and female (83%). The remaining staff participants included nurses, therapists, and social workers who were involved in direct care. They received a one-time \$20 honorarium to acknowledge their efforts in participating. Staff participants were 68% White, 30% African American, 2% Pacific Islander. Two (4%) were Hispanic or Latino. They were 21 – 54 (mean 35) years of age. Staff reported a range of .25 to 31 years (mean 7.5 years) experience in patient care and worked in their current facility for .10 – 18 (mean 3.5) years.

Data Collection

The principal investigator (PI) used a hand-held video recorder to tape residents and staff during daily care activities. Prior to actual recording, the PI spent a day on the resident's unit to allow participants to adjust to the presence of the PI and camera and to identify least conspicuous positions to videotape from. The PI became familiar with care routines for each resident and established that recording would not be too disruptive or upsetting.³⁸

On the actual day of recording, staff assigned to care for participating residents were invited to sign consent forms and to participate. The PI shadowed the resident during one shift and

recorded ADL interactions as they occurred. With a few exceptions, bathing, eating, dressing, oral care, and other ADL activities were captured during the course of one day. To ensure privacy, only activities or portions of activities that did not require a curtain or door to be closed were recorded. Staff and residents and their surrogate decision makers were advised that they could elect not to be recorded during specific times or could have any recorded segments erased by the research team. However, no requests to delete data were received.

Data Reduction

The first ten minutes of recording for each resident was deleted to allow time to adjust to the presence of the PI and videorecording. The remainder of recorded video for each subject was reviewed to identify interactions featuring bathing, eating or oral care, dressing, and another ADL activity for each resident. The first ten minutes of ADL care have been established as reliable representations of verbal ($r = .80-.93$) and nonverbal ($r = .61-.92$) behaviors in comparison to entire interactions³⁸ and are standard intervals in staff-resident interactions in dementia care research.³⁹

The following criteria were used to select video footage for analysis: the staff-resident dyad had to be visible during the interaction, recording quality had to be adequate to understand and transcribe all verbal statements, nonconsenting persons could not be recorded, and interactions had to last at least 30 seconds. The starting point for each interaction was determined by the staff person entering the room, initiating conversation with or orienting the resident to person or task, and ended when the staff person verbalized completion, initiated a new activity, or exited the room.⁴⁰ This process resulted in selection of 80 separate interactions for coding. Mean length of these selected video recordings of ADL care was 4.58 minutes (range .5 – 10 minutes). All video data was archived using unique computer data file identifier codes with a secure key maintained by the PI to assure confidentiality and anonymity.

Measures

Measures of nursing staff communication and resident behaviors during nursing care were conceptually derived from research on elderspeak³ and RTC.¹⁶ Established procedures for psycholinguistic coding of elderspeak communication in transcripts²⁰ and use of the RTC rating scale¹⁶ were used. Behavioral coding schemes for frame-by-frame computer coding of both nursing staff communication and resident RTC behavior were developed a priori.

Elderspeak—Two research assistants transcribed the audio portion each video MPEG file using the Transcript Builder Program, creating a text file for each interaction. Each text transcript then was coded for diminutives and collective pronoun substitutions using established operational definitions.^{1, 15} Training and practice by research assistants using previously collected video recordings was used to establish reliability of transcription and coding at 90% or greater agreement for segmenting utterances and coding of diminutive and collective pronoun substitutions. During coding of the study sample, ten percent of the videos were separately transcribed and coded by two research team members, confirming 90% or greater agreement.

The Systematic Analysis of Language Transcripts (SALT) computer program⁴¹ was used to calculate mean length of utterances in words (MLU) as a measure of shortened sentence length. SALT also computed type token ratio (TTR), an index of the complexity of vocabulary, a ratio of words used to different word roots. Counts of diminutives and collective pronouns were also tabulated and transformed to per utterance frequencies to correct for varying lengths of the interactions.^{20, 42}

Resistiveness to Care—The Resistiveness to Care Scale (RTCS)¹⁶ is a measure of the occurrence of and intensity of behaviors of persons with dementia including those that disrupt ADL care. Instead of assuming the demented person is responsible for intentional hurtful and destructive behaviors, the RTC scale reframes “problem” behaviors as interactions between the individual and the environment.⁴³ The RTC scale also expands beyond aggressive behaviors to capture more subtle and clinically relevant behavioral responses to care. The RTC scale assesses 13 behaviors including “grabbing objects, saying no, adduction [holding the arms or legs tight against the body], grabbing a person, pulling away, clenching teeth, crying, screaming, turning away, pushing away, hitting/kicking, threatening, and gegenhalten” [moving the body in the opposite direction from staff].

Several months of training and practice were provided to research team using established training materials and operational definitions⁴⁴ until agreement for coding identified behaviors reached 90% agreement on practice materials. Each nursing staff-resident interaction (N= 80) was then scored using the RTC scale. Each occurrence of the 13 RTC behaviors was scored by duration (0=none, 1<16 s, 2=16–59 s, 3=60–120 s, and 4>120 s) and intensity (1=mild, 2=moderate, and 3=extreme). The total RTC score was the sum of multiplying the duration of each incident by its observed intensity providing a weighted score within a possible range of 0 (no resistiveness) to 156 (maximum resistiveness). To correct for variation in video segment length, each RTC scale score was divided by the length of the interaction.

Research has established the inter-rater reliability for the RTC scale at 95% with in two LTC dementia populations (Cronbach’s alphas .82–.87).¹⁶ RTCS content validity is reported at 1.0 ($p<.05$) and criterion-related validity as a .76 correlation with the Discomfort Scale for Dementia,⁴⁵ used as an outcome of RTC.

Behavioral Coding

Systems for behaviorally coding nursing staff communication and resident behavior were developed using the Noldus Observer Video Pro program (2003) to support frame-by-frame analysis of temporal relationships. A computer key corresponding to each staff communication and resident behavior was pushed when the behavior occurs in the real time video recordings. Duration of behavior was tabulated by the length of time until a key corresponding to an alternate behavior state was pushed. Based on the sequential analysis systems used by Burgio and colleagues,⁸ each second of an interaction was coded for communication state (elderspeak, normal speech, or silence) and resident behavior state (RTC, cooperative, or neutral). Figure 1 presents a sample plot comparing nursing communication with resident behavior.

Although second by second coding is extremely time consuming (we estimate one hour to code each 5 minutes of videotaped interactions), this method has been effective in research on interpersonal interactions in LTC.^{8, 46} Extensive training in behavioral coding of resident behaviors was required until inter-rater reliability of at least 90% agreement was achieved on practice materials. Reliability of 90% or greater agreement was also confirmed on 10% of the sample video clips. Behaviorally coded RTC was correlated with nursing staff reports of “resists care” frequency as reported on the MDS ($r = .67$, $p < .001$). To avoid bias, one RA team coded the video clips for communication and another team coded resident behavior.

ANALYSES

A number of analyses were used to answer the research questions. Initially, we compared the use of elderspeak by nursing staff and resident RTC behaviors across activities. Secondly, we examined relationships between elderspeak use and RTC.

We first evaluated whether nursing staff communication and RTC varied among the four care activities. Earlier research has established that RTC is concentrated during intensive personal care activities such as bathing²⁹ and that staff utilize increased elderspeak during personal care activities.³⁵ This analysis compared the computed elderspeak metrics (diminutives, collective pronoun substitutions, MLU, and TTR) and RTC scale scores among the four different care activities. Because our data were clustered and not normally distributed, Generalized Estimating Equations (GEE) method was used for this analysis.⁴⁷ Binomial and Poisson distributions were used to correct skew in data. The GEE model appropriately adjusts for correlated data. This adjustment is vital for correct p-values.

To assess the influence of nursing staff elderspeak communication on resident behavior, we identified each instance in the behaviorally coded data when the resident's behavior state changed. ⁸ ⁴⁶ When resident behavior changed, (among states of cooperative, neutral, and RTC), we looked back 7 seconds to determine what staff communication style (normal, elderspeak, or silent) was in use (as an antecedent to the resident behavior). A five to ten second reactionary interval has been established as a standard in prior nursing staff-resident interaction research.⁴⁸ Aggregate change data were combined in plots in contingency tables. Data from staff-resident interactions across activities were combined. Table 1 displays the frequencies of staff communication-resident behavior state combinations.

To examine the alternative hypothesis, that resident behavior prompted staff to use elderspeak communication, we coded changes in nursing staff communication style (elderspeak, normal, silence) and looked back 7 seconds to determine what resident behavior state was occurring.

Two Bayesian Binomial Hierarchical models were used to explore the associations between elderspeak and RTC. One model explored the probability of resident RTC following staff elderspeak. The second model explored the probability of staff elderspeak use following resident RTC. An alternative would be to calculate Fisher's exact tests across all dyads or within dyads. These two alternatives are problematic because they are inefficient or are unrealistic assumptions. The Bayesian hierarchical model allows one to combine the information from other subjects while preserving their individuality.

The hierarchical approach results in probability estimates that are a weighted average of an individual subject's probability estimate plus the average probability of all the other subjects. Sometimes this weighted average is called "shrinkage" because sparse staff and resident (dyads) interactions are "shrunk" toward the population mean. An extreme case is predicting a future interaction – shrink towards the average of all subjects. The Bayesian machinery allows this to be done with a straightforward calculation.

The two level hierarchical model was fit using the software WinBUGS.⁴⁹ The first level models changes in the resident's behavior within each of the eighty staff-resident interactions. There may be multiple changes in the resident's behavior during each interaction. The second level models the variation of occurrence of resident behavior change across the 20 different residents. These behavior changes are embedded into a resident specific interaction and modeled with a resident specific Beta distribution. For each resident's Beta distribution there are two parameters denoted as alpha and beta. The parameter alpha represents the number of RTC interactions for a given resident and beta is the number of non-RTC interactions for that resident. The variation in the residents' parameters is modeled with an exponential distribution. An exponential distribution was used for computational convenience and it lies on 0 to infinity (same possible values for alpha and beta).

RESULTS

Elderspeak and Resistiveness To Care Across Activities

General Estimating Equations established that psycholinguistically coded elderspeak and RTC scores did not significantly vary across care activities. Diminutive (inappropriately intimate terms of endearment) use did not vary across ADL activities in this sample (Wald Chi-Square = .038, $df = 3$, $p = .99$). Collective pronoun use did vary by activity (Wald Chi-Square = 36.71, $df = 3$, $p < .01$). Collective pronoun substitutions were greater during bathing (Wald Chi-Square = 26.23, $df = 1$, $p < .01$) and dressing (Wald Chi-Square = .26, $df = 1$, $p = .01$) compared to other activities. The addition of demographic information strengthened the model prediction. Specifically, higher MDSCog Scores (indicating greater cognitive impairment) were associated with greater collective pronoun use (Chi Square = 8.56, $df = 1$, $p = 0.003$). Higher need for nursing assistance with ADLs also was significantly related with reduced staff use of collective pronoun substitutions (Chi-Square = 7.142, $df = 1$, $p = .008$). Resident age and communication impairment did not significantly improve prediction in the model.

RTC did not significantly vary across activities in our sample (Wald Chi-Square = 2.62, $df = 3$, $p = .45$) contrasting with other research and clinical reports. To examine whether elderspeak use varied in association to level or intensity of RTC, a post-hoc analysis was completed testing elderspeak use as a function of RTC level. However, elderspeak measures did not vary even when residents were more or less RTC (all p values $> .294$).

Associations between Communication and Resident Behavior—Bayesian

Hierarchical modeling revealed significant differences in the occurrence of RTC across communication states with an increased probability of resident RTC when nursing staff used elderspeak in comparison to normal talk and silence (Bayes $p = .0028$). This relationship can be better understood by examining 95% credible intervals (95% CrI) of the probability of RTC behavior under different types of staff communication. Similar to confidence intervals that are used for reporting probability parameters for classical statistical methods, credible intervals are standard for reporting probability parameters from Bayesian models.^{50, 51} When elderspeak communication was used, the probability of RTC was .55 (95% CrI = .44–.66). In contrast, the probability of RTC was .26 (95% CrI = .12–.44) when staff used normal adult communication. Silence resulted in a probability of .36 for RTC (95% CrI = .21–.55). Figure 2 presents a plot of the comparing the probabilities of RTC during different staff communication states.

In evaluating the potential reverse relationship (that nursing staff respond with elderspeak communication when resident exhibit RTC) Bayesian modeling determined that the elderspeak use does vary with different resident behavior states (Bayes $p < .01$). However, examination of the credible intervals reveals that neutral behavior is highly associated with elderpeak. The probability of staff using elderspeak when residents exhibited RTC behavior was .36 (CrI = .26–.47), while the probability that staff would use elderspeak was slightly higher at .44 (CrI = .34–.55) when residents were cooperative. Neutral resident behavior resulted in a .72 (CrI = .60–.82) probability of staff elderspeak use. Behavioral coding of each video clip started with residents in neutral (no resident behaviors) and staff in normal communication states; this finding probably reflects staff use of elderspeak in initiating their conversations with residents. See Figure 3.

DISCUSSION

This observational study supports a temporal relationship between nursing staff communication and resident RTC in dementia care. The likelihood of RTC behavior was significantly greater following use of elderspeak communication rather than normal talk or

silence. If a randomly selected resident is in a care situation where nursing staff use elderspeak communication, the probability that the resident will exhibit RTC is significantly greater than under other communication conditions.

Because of the high frequency of elderspeak communication use by nursing staff and limited RTC behaviors in our sample, power was limited in establishing relationships. Contrary to previous research, persons with dementia in our sample did not exhibit differences in RTC behavior across care activities. This enabled us to combine the data across activities in a Bayesian model, increasing statistical power to detect relationships. Future research should be conducted to confirm whether the occurrence of elderspeak and RTC vary by care activity.

A temporal relationship between nursing staff use of elderspeak communication and resident RTC behavior was supported in this study. Silence resulted in higher probabilities of RTC than normal talk, but a lower probability of RTC than elderspeak communication. Thus, elderspeak communication may be heard and understood by persons with dementia who may respond with RTC to indicate their unmet need for less patronizing, adult communication.

A research design that experimentally manipulates nursing staff communication and then assesses resulting resident RTC behaviors is essential to establish a true antecedent-consequent (cause and effect) relationship. Such ongoing research may provide strong evidence to guide communication practices in dementia care. Improved communication may better meet the needs and preferences of nursing home residents with dementia, as indicated in the Need-Driven Dementia-Compromised Behavior model.

This study included a limited sample of institutionalized older adults with dementia who consented to participate in videotaping in conjunction with their surrogate decision makers, and nursing staff. Although, nursing staff identified potential subjects who exhibited RTC for recruitment, RTC behaviors were relatively infrequent, especially for certain subjects. Other researchers have excluded subjects not demonstrating a minimal level of RTC behaviors.⁴⁶ We included all subjects in our sample regardless of the occurrence of RTC behaviors of interest.

Considering the complexity of this data, advanced statistical techniques such as Generalized Estimating Equations (GEE) and Bayesian Hierarchical Modeling were essential approaches to analyze the clinically derived, behaviorally coded data. Future investigation of other complex nursing care problems and antecedent-consequent behaviors warrant continued use of advanced statistical techniques and inclusion of statistical experts on the research team.

In our examination of individual plots of behavioral changes in the 80 video clips, we noted that several residents tended to be always resistive or always cooperative, indicating that these residents may be less sensitive to communication as a trigger for RTC. Qualitative analysis of those residents exhibiting dynamic behavior within and between care interactions may provide additional clues to communication and other contextual factors that trigger RTC in selected individuals.

Our sample was limited by the homogeneity of the stage of dementia in the care recipients. Future research with larger samples is needed to examine the impact of dementia stage on RTC in response to staff communication. Of note, is that elderspeak use was frequent (see Table 1) and that normal talk occurred infrequently.

This study suggests that nursing home residents with dementia are significantly more likely to exhibit RTC when nursing staff use elderspeak communication compared to normal adult talk. Reducing nursing staff use of elderspeak may better meet the needs of individuals with dementia, reduce resistiveness behaviors, and thus improve nursing care. Future research will

evaluate whether an intervention empirically proven to decrease nursing home staff elderspeak use,^{1, 15} will result in reductions in RTC behaviors of care recipients with dementia.

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REFERENCES

1. Williams K, Kemper S, Hummert ML. Improving nursing home communication: An intervention to reduce elderspeak. *Gerontologist*. 2003 2003;43(2):242–247.
2. Kemper S, Harden T. Experimentally disentangling what's beneficial about elderspeak from what's not. *Psychol Aging* 1999;14(4)
3. Ryan EB, Hummert ML, Boich LH. Communication predicaments of aging; Patronizing behavior toward older adults. *J Lang Soc Psychol* 1995;14(1–2):144–166.
4. Orange JB, Colton-Hudson A. Enhancing communication in dementia of the Alzheimer's type. *Top Geriatr Rehab* 1998;14(2):56–75.
5. Small J, Geldart K, Gutman G. Communicaton between individuals with dementia and thier caregives during activities of daily living. *J Alzheimers Dis Other Demen* 2000;18:291–316.
6. O'Connor B, Rigby H. Perceptions of baby talk, frequency of receiving baby talk, and self-esteem among community and nursing home residents. *Psychol Aging* 1996;11(1):147–154. [PubMed: 8726380]
7. Ryan EB, Meredith SD, Maclean MJ, Orange JB. Changing the way we talk with elders: Promoting health using the communication enhancement model. *Int J Aging Hum Dev* 1995;41(2):89–107. [PubMed: 8550234]
8. Burgio L, Butler F, Roth D, Hardin J, Hsu C, Ung K. Agitation in nursing home residents: the role of gender and social context. *Int Psychogeriatr* 2000;12:495–511. [PubMed: 11263716]
9. Talicero K, Evans L, Strumpf N. Mental health correlates of aggression in nursing home reisdents with dementia. *Gerontologist* 2002;42:169–177. [PubMed: 11914460]
10. Beeri MS, Werner P, Davidson M, Noy S. The cost of behavioral and pshychological symptoms of dementia (BPSD) in community dwelling AD patients. *Int J Geriatr Psychiatry* 2002;17:403–408. [PubMed: 11994927]
11. Davis L, Buckwalter K, Burgio L. Measuring problem behaviors in dementia: Developing a methodological approach. *Adv Nurs Science* 1997;20:45–55.
12. Burgio LD, Allen-Burge R, Roth DL, et al. Come Talk With Me Improving Communication Between Nursing Assistants and Nursing Home Residents During Care Routines. *Gerontologist* 2001;41(4): 449–460. [PubMed: 11490043]
13. McCallion P, Toseland R, Lacey D, Banks S. Educating nursing assistants to communicate more effectively with nursing home residents. *Gerontologist* 1999;39(5):546–558. [PubMed: 10568079]
14. Barrick, AL.; Rader, J.; Hoeffler, B.; Sloane, P. *Bathing withou a battle: personal care of individuals with dementia*. New York: Springer; 2002.
15. Williams K. Improving outcomes of nursing home interactions. *Res Nurs Health* 2006;29:121–133. [PubMed: 16532478]
16. Mahoney EK, Hurley AC, Volicer L, et al. Development and testing of the resistiveness to care scale. *Res Nurs Health* 1999;22:27–38. [PubMed: 9928961]
17. Balestri L, Grossberg A, Grossberg G. Behavioral and psychological symptoms of dementia as a risk factor for nursing home placment. *Int Psychogeriatr* 2000;12:59–62.
18. Perkins L, Whitworth A, Lesser R. Conversing in dementia: A conversation analytic approach. *J Neurolinguistics* 1998;11:33–53.

19. Caporael L. The paralanguage of caregiving: Baby talk to the institutionalized aged. *J Pers Soc Psychol* 1981;40(5):876–884. [PubMed: 7241341]
20. Kemper S. Elderspeak: Speech accommodations to older adults. *Aging Cog* 1994;1(1):17–28.
21. Ryan EB, Giles H, Bartolucci RY, Henwood K. Psycholinguistic and social psychological components of communication by and with the elderly. *Lang and Comm* 1986;6(12):1–24.
22. Kemper S, Ferrell P, Harden T, Finter-Urczyk A, Billington C. Use of elderspeak by young and older adults to impaired and unimpaired listeners. *Aging, Neuropsychology, and Cognition* 1998;5(1):43–55.
23. Kitwood T. The experience of dementia. *Aging Ment Health* 1997;7:15–22.
24. Kitwood T, Bredin K. Towards a theory of dementia care: Personhood and wellbeing. *Age Soc* 1992;12:269–287.
25. Small J, Geldart K, Gutman G, Scott MA. The discourse of self in dementia. *Age Soc* 1998;18:291–316.
26. Brown, P.; Levinson, SC. *Politeness: Some Universals in Language Useage*. Cambridge, UK: Cambridge University Press; 1987.
27. Sloane P, Honn VJ, Dwyer SAR, Weiselquist J, Cain C, Meyers S. Bathing the Alzheimer's patient in long-term care: Results and recommendations from three studies. *J Alzheimers Dis Other Demen* 1995;10(4):3–11.
28. Beck C, Heacock P, Mercer S, Walls R, Rapp C, Vogelpohl T. Improving dressing behavior in cognitively impaired nursing home residents. *Nurs Res* 1997;46:126–132. [PubMed: 9176501]
29. Hoeffer B, Rader J, McKenzie D, Lavelle M, Stewart B. Reducing aggression during bathing cognitively impaired nursing home residents. *J Gerontol Nurs* 1997;23(16–23)
30. Algate DL, Beck C, Kolanowski A, Berrent S, Richards K, Beattie E. Need-driven dementia-compromised behavior: An alternative view of disruptive behavior. *J Alzheimers Dis Other Demen* 1996;11(6):10–19.
31. Kolanowshi A, Hurwitz S, Taylor L, Evans L, Strumpf N. Contextual factors associated with disturbing behaviors in institutionalized elders. *Nurs Res* 1994;43:73–79. [PubMed: 8152941]
32. Feldt K, Ryden M. Aggressive behavior: Educating nursing assistants. *J Gerontol Nurs* 1992;18(5):3–12. [PubMed: 1583285]
33. Ripich D. Functional communication with AD patients: A caregiver training program. *Alzheimer Dis Assoc Disord* 1994;8:95–109. [PubMed: 7999352]
34. Ryden MB, Bossenmaier M, McLachlan C. Aggressive behavior in cognitively impaired nursing home residents. *Res Nurs Health* 1991;14:87–95. [PubMed: 2047539]
35. Williams K, Ilten T, Bower H. Meeting communication needs: Topics of talk in the nursing home. *J Psychosoc Nurs Ment Health Serv* 2005;43:38–45. [PubMed: 16116925]
36. Cohen-Mansfield J, Taylor L, McConnell D, Horton D. Estimating the Cognitive Ability of Nursing Home Residents from the Minimum Data Set. *Outcomes Manag Nurs Pract* 1999 January/March;3(1):43–36. 1999. [PubMed: 9934198]
37. Hartmaier SL, Sloane PD, Guess HA, Koch GC. The MDS Cognition Scale: a valid instrument for identifying and staging nursing home residents with dementia using the minimum data set. *J Am Geriatr Soc* 1994;42:1173–1179. [PubMed: 7963204]
38. Caris-Verhallen W, Kerkstra A, Heijden Pvd, Bensing J. Nurse-elderly patient communication in home care and institutional care; an explorative study. *Int J Nurs Stud* 1998;35:95–108. [PubMed: 9695016]
39. Beck C, Vogelpohl T, Rasin J, et al. Effects of behavioral interventions on disruptive behavior and affect in demented nursing home residents. *Nurs Res* 2002;51:219–228. [PubMed: 12131234]
40. Edberg AK, Sandgrean AN, Hallberb IR. Initiating and terminating verbal interaction between nurses and severely demented patients regarded as vocally disruptive. *J Psychiatr Ment Health Nurs* 1995;2:3–12. [PubMed: 7773702]
41. Miller, JF.; Chapman, RS. *SALT: Systematic Analysis of Language Transcripts*. Madison, Wisconsin: University of Wisconsin; 1984. 1984

42. Hummert ML, Garstka TA, Shaner JL, Strahm S. Judgments about stereotypes of the elderly; Attitudes, age associations, and typicality ratings of young, middle-aged, and elderly adults. *Res Aging* 1995;17(2):168–189.
43. Gibson M. Differentiating aggressive and resistive behaviors in long-term care. *J Gerontol Nurs* 1997;32:21–28. [PubMed: 9146181]
44. Mahoney E, Hurley A, Volicer L. Instruction Manual for Resistiveness to Care Scale n.d.
45. Hurley A, Volicer L, Hanrahan P, Houde S, Volicer L. Assessment of discomfort in advanced Alzheimer's patients. *Res Nurs Health* 1992;15:369–377. [PubMed: 1529121]
46. Roth DL, Stevens AB, Burgio LD, Burgio KL. Timed-event sequential analysis of agitation in nursing home residents during personal care interactions with nursing assistants. *J Gerontol B Psychol Sci Soc Sci* 2002;57B::P461–P468. [PubMed: 12198105]
47. Hardin, JW.; Hilbe, JM. Generalized Estimating Equations. New York: Chapman and Hall/CRC; 2003.
48. Somboontanont W, Sloane PD, Floyd FI, Holditch-Davis D, Hogue CC, Murphy MM. Assaultive behavior in Alzheimer's disease: Identifying immediate antecedents during bathing. *J Gerontol Nurs* 2004;30(9):22–29. [PubMed: 15471060]
49. Lunn DJ, Thomas A, Best N, Spiegelhalter D. WinBUGS - - a Bayesian modeling framework: Concepts, structure, and extensibility. *Statistics and Computing* 2000;10:325–337.
50. Carpenter J, Gajewski B, Teel C, Aaronson L. Data analysis: Estimating the efficiency of Tai Chi as a case study. *Nurs Res.* 2008 In press.
51. Gajewski B, Simon S. A one-hour training seminar on Bayesian statistics for nursing graduate students. *Am Stat.* 2008 In press.

Figure 1.

Plot of resident behavior changes and corresponding staff communication state. Scale refers to positive communication and behavioral attributes having a positive number compared to negative attributes. For staff communication state (1 = normal talk, 0 = silence, -1 = elderspeak) and resident behavior (1 = cooperative, 0 = neutral, -1 = resistiveness to care).

Figure 2.

Boxplots of the 95% probability distributions of subsequent resident resistiveness to care behavior when staff use elderspeak, normal talk, or are silent. The center lines represent the median of the distribution, the boxes represent the interval ranges (2.5% –97.5%) of each distribution.

Figure 3.

Boxplots of the 95% probability of subsequent elderspeak use by nursing staff when resident's behavior is resistive to care, cooperative, or neutral. The center lines represent the median of the distribution, the boxes represent the interval ranges (2.5% –97.5%) of each distribution.

Table 1

Resident Behavior State Changes and Corresponding Nursing Staff Communication State

Resident Behavior Change	Staff Communication			Total Occurrences
	Elderspeak	Silent	Normal Talk	
From Cooperative to RTC	91 (36%)	17 (7%)	9 (3%)	117 (46%)
From RTC to Cooperative	83 (32%)	30 (12%)	26 (10%)	139 (54%)

Note: There were 256 incidences of resident behavior state change in the total sample.