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Elderspeak Communication: Impact on Dementia Care

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Resistiveness to care is common in older adults with dementia. Resistiveness to care disrupts nursing care, increasing costs of care by 30%. Elderspeak (infantilizing communication used by nursing staff) may trigger resistiveness to care 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 resistive to care). Bayesian statistical analysis tested relationships between staff communication and subsequent resident resistiveness to care. The probability of resistiveness to care varied significantly with communication (Bayes P = .0082). An increased probability of resistiveness to care occurred with elderspeak (.55, 95% CrI, .44-.66), compared with normal talk (.26, 95% CrI, .12-.44). Communication training has been shown to reduce elderspeak and may reduce resistiveness to care in future research.

Keywords: dementia care; communication; problem behaviors; resistiveness to care

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 aims of this study were to determine the magnitude and the direction of elderspeak effects on the behavior of persons with dementia and when it might comfort[6] 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% to 90% of persons with dementia. These resistive problem behaviors result in disrupted care, adding 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 the relationships between nursing staff elderspeak communication and resistiveness to care (RTC) behavior[16] of LTC residents with dementia. Video recordings of 80 nursing staff-resident interactions during ADLs were collected and analyzed to determine the relationships between nursing staff elderspeak communication and resident RTC behavior. Frame-by-frame behavioral coding of nursing staff communication and resident

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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 placement.[17] It is estimated that these disruptive behaviors increase costs of providing nursing care by 25% to 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 (ie, 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 et al[21] 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 Harden[2] 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 well-being 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 et al[27] advocate staff use of familial forms of address, such as papa, to comfort care recipients with dementia; Small et al[25] found the use of collective pronoun substitutions effective in gaining cooperation with caregiving activities, and Orange and Colton-Hudson[4] 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 Rigby[6] found that some elders value the warmth and the 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 behavior[30] describes how behavior reflects the unmet

needs of a person with dementia. In this model, fixed (unchangeable) and proximal (modifiable) factors interact and 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 the problem behaviors.

Recognizing the role of communication in problem behaviors and a variety of interventions targeting different staff communication skills have been successful in increasing the 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 the relationships between elderspeak communication and subsequent RTC in this study of ADL care, when elderspeak and RTC frequently occur.[29,34,35] A total of 80 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, and 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 certified nursing assistants [CNAs]) from 3 participating dementia care facilities were recruited and gave written permission per institutional review board approval for video recordings during bathing, eating, 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 3 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, sex, race/ethnicity, marital status, and psychotropic medication use. Minimum data set (MDS) information on functional status, ADL support provided, and cognitive abilities were also collected. The MDS-Cognition Scale (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 to 97 years. 5 (25%) were males, one (5%) was African American; the remaining subjects were Caucasian women. The ADL functional score ranged from 7 to 52 in our 20 subjects with a mean of 29.6. Higher scores indicate greater dependency. MDS-COGS scores in our sample ranged from 4 to 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. Of 55 nursing staff invited to participate, 52 consented and

were included. Three nursing staff declined due to not wishing to be video recorded. Staff participants were primarily (78%) CNAs and woman (83%). The remaining staff participants included nurses, therapists, and social workers who were involved in direct care. They received a 1-time US$20 honorarium to acknowledge their efforts in participating. Staff participants were 68% White, 30% African American, and 2% Pacific Islander. Two (4%) were Hispanic or Latino. They were 21 to 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 to 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 1 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 1 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 10 minutes of recording for each resident was deleted to allow time to adjust to the presence of the PI and video recording. The remainder of recorded video for each subject was reviewed to identify interactions featuring bathing, eating, oral care, dressing, and another ADL activity for each resident. The first 10 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 interactions[38] 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 elderspeak[3] and RTC.[16] Established procedures for psycholinguistic coding of elderspeak communication in transcripts[20] and use of the RTC rating scale[16] 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 (RAs) transcribed the audio portion of each video moving pictures expert group (MPEG) file using the Transcript Builder Program Version 1.9.1 (Thinking Publications, Greenville, South Carolina), 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 RA using previously collected video recordings was used to establish the 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, 10% of the videos were separately transcribed and coded by 2 research team members, confirming 90% or greater agreement.

The Systematic Analysis of Language Transcripts (SALT) computer program[41] (LLC, Muscoda, Wisconsin) was used to calculate mean length of utterances in words (MLU) as a measure of shortened sentence length. The 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 RTCS reframes problem behaviors as interactions between the individual and the environment.[43] The RTCS also expands beyond aggressive behaviors to capture more subtle and clinically relevant behavioral responses to care. The RTCS 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 definitions (E. Mahoney, PhD Unpublished data, November 2003) until agreement for coding identified behaviors reached 90% agreement on practice materials. Each nursing staff-resident interaction (n = 80) was then scored using the RTCS. Each occurrence of the 13 RTC behaviors was scored by duration (0 = none, 1 < 16 seconds, 2 = 16-59 seconds, 3 = 60-120 seconds, and 4 > 120 seconds) 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 interrater reliability for the RTCS at 95% with in 2 LTC dementia populations (Cronbach's α 0.82-0.87).[16] The RTCS content validity is reported at 1.0 ($P \leq .05$) and criterion-related validity as a .76 correlation with the Discomfort Scale for Dementia,[44] 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 (Noldus Information Technologies Inc, Leesburg, Virginia) 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. On the basis of sequential analysis systems used by Burgio et al,[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 1 hour to code each 5 minutes of videotaped interactions), this method has been effective in research on interpersonal interactions in LTC.[8,45] Extensive training in behavioral coding of resident behaviors is required until interrater 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, 1 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 the relationships between elderspeak use and RTC.

We first evaluated whether nursing staff communication and RTC varied among the 4 care activities. Earlier research has established that RTC is concentrated during intensive personal care activities, such

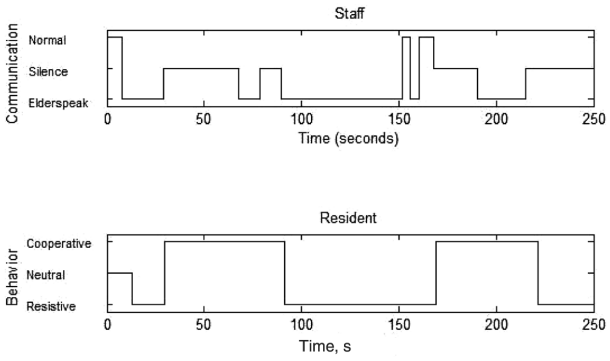

Figure 1. Plot of resident behavior changes and corresponding staff communication state. Scale refers to positive communication and behavioral attributes having a positive number compared with negative attributes.

as bathing,[29] and that staff use increased elderspeak during personal care activities.[35] This analysis compared the computed elderspeak metrics (diminutives, collective pronoun substitutions, MLU, and TTR) and RTCS scores among the 4 different care activities. Because our data were clustered and not normally distributed, generalized estimating equations (GEE) method was used for this analysis.[46] 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.[8,45] 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 5 to 10 second reactionary interval has been established as a standard in prior nursing staff-resident interaction research.[47] Aggregate change data were combined in plots in contingency tables. Data from staff-resident interactions across activities were combined. Table 1 shows 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.

Table 1. Resident Behavior State Changes and Corresponding Nursing Staff Communication State[a]

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

Abbreviation: RTC, resistiveness to care.
[a]There were 256 incidences of resident behavior state change in the total sample.

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 2 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—shrinks toward the average of all subjects. The Bayesian machinery allows this to be done with a straightforward calculation.

The 2-level hierarchical model was fit using the software WinBUGS (MRC Biostatistics Unit, Cambridge, United Kingdom).[48] The first level models changes in the resident's behavior within each of the 80 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 β distribution. For each resident's β distribution, there are 2 parameters denoted as α and β. The parameter α represents the number of RTC interactions for a given resident, and β 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 α and β).

Results

Elderspeak and Resistiveness to Care Across Activities

Generalized 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 with other activities. The addition of demographic information strengthened the model prediction. Specifically, higher MDS-COGS scores (indicating greater cognitive impairment) were associated with greater collective pronoun use (chi-square = 8.56, $df = 1$, $P = .003$). 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.

The 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, CrI are standard for reporting probability parameters from Bayesian models.[49,50] When elderspeak communication was used, the probability of RTC was .55 (95% CrI, .44-.66). In contrast, the probablity 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.

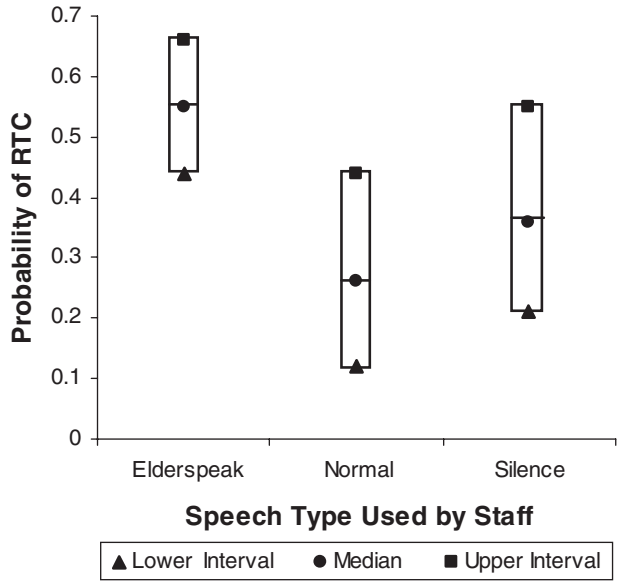

Figure 2. Boxplots of the 95% probability distributions of subsequent resident resistiveness to care behavior when staff use elderspeak, normal talk, or are silent. The center lines represent the median of the distrubtion, the boxes represent the interval ranges (2.5%-97.5%) of each distribution.

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 CrI reveals that neutral behavior is highly associated with elderspeak. The probability of staff using elderspeak when residents exhibited RTC behavior was .36 (95% CrI, .26-.47), whereas the probability that staff would use elderspeak was slightly higher at .44 (95% CrI, .34-.55) when residents were cooperative. Neutral resident behavior resulted in a .72 (95% CrI, .60-.82) probability of

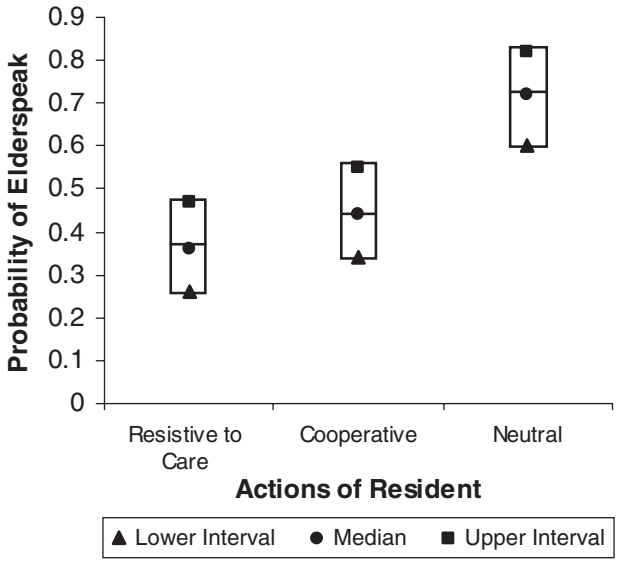

Figure 3. Boxplots of the 95% probability of subsequent elderspeak use by nursing staff when resident's behavior is resistive to care, cooperative, or neutral. The center lines represent the medican of the distrubtion, the boxes represent the interval ranges (2.5%-97.5%) of each distribution.

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 the staff use of elderspeak in initiating their conversations with residents (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 probablities 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 the 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.[45] 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 GEE and Bayesian heirarchical modeling, were essential approaches to analyze the clinically derived, behaviorally coded data. Future investgation 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 effect of dementia stage on RTC in response to staff communication. Of note, is that elderspeak use was frequent (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 with 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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