



Published in final edited form as:

J Lang Soc Psychol. 2010 June 1; 29(2): 178–193. doi:10.1177/0261927X09359521.

Parkinson's Disease and Politeness

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Abstract

Prior research suggests that people with Parkinson's disease (PD) display certain deficiencies in their use of language. In this research, the authors used a role-playing technique to examine their ability to say things politely and to vary their level of politeness as a function of the social context. PD participants, relative to control participants, produced less polite strategies and failed to vary their politeness as a function of the size of the request. In addition, PD participants who were on high-dosage levels, relative to control and low-dosage PD participants, did not vary their politeness as a function of the recipient's power. Overall, this research demonstrates a deficit in politeness for people with PD, a deficit that most likely plays a role in some of the social deficits that have been demonstrated to occur for people with PD. Potential neurobiological mechanisms of this deficit are discussed.

Keywords

politeness; Parkinson's disease; communication debilitating illness (CDI)

A fundamental skill for successful language use is the ability to say things without offending others, the ability to pursue one's goals without seeming to impose. This interactional skill has been captured well with the concept of politeness, a technical term that refers to how people phrase their remarks so as to manage everyone's identity. A considerable amount of research has demonstrated the ubiquity of politeness and its importance in facilitating interaction. Yet not everyone uses politeness to the same degree. For example, politeness systems differ cross-culturally, with a corresponding potential for cross-cultural misunderstanding (Ambady, Koo, Lee, & Rosenthal, 1996).

In this research, we examined the politeness strategies of people with a communication debilitating illness (CDI). Research suggests that the occurrence of a CDI can present substantial challenges for individuals and the people with whom they have relationships (Bute, Donovan-Kicken, & Martins, 2007; Donovan-Kicken & Bute, 2008). The particular CDI we examined in this research was Parkinson's disease (PD), a disorder that frequently includes the impairment of certain language functions. No one, however, has yet examined the politeness capabilities of people with PD. Such an undertaking is important because politeness provides an overarching framework for examining various facets of situated communication. Moreover,

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Declaration of Conflicting Interests The authors declared no conflicts of interest with respect to the authorship and/or publication of this.

examining politeness in PD can contribute to our understanding of the neurobiological underpinnings of the pragmatics of language use.

Politeness Theory

The most well-known theory of linguistic politeness was proposed by Brown and Levinson (1978,1987). A fundamental assumption of their theory, derived from the work of Ervin Goffman (1967), is that people in face-to-face interaction are continually concerned with managing each others' face, or public identity, and they do so via face-work. For Brown and Levinson (1987), politeness is essentially the linguistic means by which face-work is accomplished.

Brown and Levinson (1987) suggested that there are two universal types of face: negative face—or the desire to be unrestricted by others—and positive face—or the desire to be connected with others. Both positive and negative faces are subject to continued threat during social interactions. For example, the act of addressing a remark to someone imposes on that person at some minimal level by requiring a response (hence, negative face—or freedom from imposition—is threatened). Disagreements, criticisms, and refusals all threaten (primarily) the recipient's positive face (the desire for closeness with the other). Importantly, the speaker's own face may be threatened by the performance of certain acts. Promises threaten the speaker's negative face (by restricting subsequent freedom), and apologies threaten the speaker's positive face (via an admission of harming the other). Social interaction thus presents a dilemma for interactants. On one hand, they are motivated to maintain each other's positive and negative face. On the other hand, they are motivated to perform certain speech acts that threaten those very desires. This conflict is solved (to varying degrees) by engaging in face-work, or more precisely, by being polite.

In Brown and Levinson's (1987) model, politeness is conveyed by deviating from maximally efficient communication (i.e., communication adhering to Grice's, 1975, maxims of relation, quantity, quality, and manner). There are, of course, many ways this can be accomplished, and Brown and Levinson (1987) organized politeness into five superstrategies. These superstrategies are assumed to be ordered on a continuum of overall politeness, or the extent to which face concerns are encoded in the communication. In addition, these strategies vary in terms of the social-cognitive resources required for their use. Consider the act of making a request. The least polite strategy is to perform the act without any politeness. To do so is to perform the act bald-on-record, as, for example, with an imperative ("Shut the door"). These are explicit speech acts that are maximally efficient; they are entirely in accord with Grice's (1975) maxims and are not fine-tuned in terms of the recipient or the context.

The most polite strategy is simply to not perform the act at all. But if the act is performed, then the most polite strategy is to do so with an off-record form. The defining feature of off-record forms is their ambiguity and hence deniability (Pinker, Nowak, & Lee, 2008). A common mechanism for performing an off-record form is to violate one of Grice's (1975) maxims. For example, uttering "It's cold in here" in an obviously cold room violates the quantity maxim (it states the obvious) and hence often functions as a polite request (e.g., to turn up the thermostat). The layers of meaning in off-record forms require extensive social-cognitive processing for their use (Holtgraves, 1998, 1999).

Falling between these two extremes are on-record acts with redress emphasizing either positive face or negative face. The former, termed *positive politeness*, functions via an exaggerated emphasis on closeness or solidarity with the hearer. This is approach-based politeness and includes the use of in-group identity markers (e.g., familiar address forms, slang), jokes, and presumptuous optimism ("You'll loan me your car, won't you?"), all implicating a view of a relatively close relationship. The latter, termed *negative politeness*, is avoidance-based

politeness and is directed toward the recipient's negative face (autonomy). Common examples of negative politeness include conventionalized indirect forms (e.g., "Could you shut the door?"), avoiding presumption via the use of hedges (e.g., "Post this for me if you can"), lessening coercion via pessimism (e.g., "I don't suppose there's any chance you could print this for me is there"), and so on. The essence of these forms is the symbolic presentation of an "out" to the recipient. The symbolic attention to face contained in on-record forms with redress make them more polite and linguistically more complex than bald forms. In addition, positive politeness (because of its greater presumptuousness) is usually regarded as less polite than negative politeness, although this may depend on the specific nature of the face-threat (Holtgraves, 1992). Research examining the predicted politeness ordering of the superstrategies has received partial support (Clark & Schunk, 1980; Holtgraves & Yang, 1990). That is, people perceive bald on-record requests to be less polite than positively polite requests and positively polite requests to be less polite than negatively polite requests.

A speaker's level of politeness is presumed to vary as a function of his or her perceptions of the interpersonal context. In this sense, politeness theory is a theory of language production (Goldsmith, 2007). Specifically, Brown and Levinson (1987) proposed that politeness will vary as a function of the weightiness (or degree of face-threat) of the act to be performed. Weightiness is contextually determined and is assumed to be an additive combination of the following three variables: the intrinsic (and culturally bound) degree of the imposition of the act itself (e.g., asking for a loan of \$5 is less imposing than asking for a loan of \$500), the power of the hearer relative to the speaker, and the degree of social distance between the interlocutors. More formally, weightiness can be determined with the following formula:

$$W_x = D(S, H) + P(H, S) + R_x,$$

where W_x refers to the weightiness of the act in this particular context, $D(S, H)$ refers to the distance between the speaker and hearer, $P(H, S)$ refers to the hearers power in relation to the speaker, and R_x refers to the degree of imposition of the act. Thus, increased weightiness (and hence, in general, greater politeness) occurs as a function of increasing imposition, hearer power, and relationship distance.

A fair amount of research has examined the impact of these variables on politeness production (for reviews, see Goldsmith, 2007; Holtgraves, 2002). In general, strong support has been found for the power variable, with most studies demonstrating higher speaker power being associated with less politeness. Fairly consistent support has been found for the imposition variable, with increasing imposition associated with increasing politeness. In contrast, the effects of relationship distance have been more problematic, with some researchers reporting greater politeness as a function of increasing distance (Holtgraves & Yang, 1992) and others reporting the exact opposite (Brown & Gilman, 1989). These inconsistent results are partly because of a confounding of relationship distance and liking, two variables that are related but conceptually and theoretically distinct (Slugoski & Turnbull, 1988).

Although a theory of message production, politeness theory can also be viewed as a theory of message interpretation and speaker evaluation (Goldsmith, 2007). For example, in terms of message interpretation, politeness provides a reason for the violation of conversation maxims and hence helps guide recipients in their attempt to determine a speaker's intended meaning (Bonnefon & Villejoubert, 2006; Holtgraves, 1998). In terms of speaker evaluation, individuals failing to comply with normative levels of politeness are evaluated negatively (Holtgraves, 2002). More specific outcomes are possible as well; varying one's politeness can be used to manipulate one's status in a relationship (Goldsmith, 2007; Holtgraves & Yang, 1990). Overall,

then, an inability to produce situation-appropriate levels of politeness can result in negative interpersonal consequences.

Parkinson's Disease and Language Use

Although PD is primarily associated with debilitating extrapyramidal motor dysfunction, it also affects thinking, reasoning, planning, and language functions. In terms of language, patients with PD often exhibit fluency and motor speech disorders, word-finding difficulties, and grammatical difficulties (McNamara & Durso, 2000, for review). For example, they tend to use simplified sentence structures with relatively more silent hesitations and pauses at critical sites in a sentence (Illes, Metter, Hanson, & Iritani, 1988). Many patients with PD also exhibit difficulty in generating words to a target stimulus (McNamara, Obler, Au, Durso, & Albert, 1992), an effect that is particularly pronounced for verbs (Bertella et al., 2002; Peran et al., 2003). Patients with PD also tend to produce a smaller number of grammatical utterances than healthy individuals (Murray 2000) and tend to use a larger number of words to describe similar themes (Obler, Mildworf, & Albert, 1977). In addition to language production, patients with PD also often exhibit mild to moderate sentence comprehension deficits (Grossman et al., 2000, 2001; Kemmerer, 1999; Lieberman, Friedman, & Feldman, 1990; McNamara, Krueger, O'Quin, Clark, & Durso, 1996).

Although less frequently studied, there is some evidence of pragmatic impairment in PD. Using the Prutting and Kirchner (1987) inventory of pragmatic language skills, McNamara and Durso (2003) found that patients with PD were significantly impaired on selected measures of pragmatic communication abilities, including the areas of conversational fluency/appropriateness, speech act production and comprehension, topic-coherence, prosodics, and proxemics. Bhat, Iyengar, and Chengappa (2001) reported similar results in a series of case studies of patients with PD who also evidenced deficits in contextual inferencing and in humor appreciation. Berg, Bjornram, Hartelius, Laakso, and Johnels (2003) reported "high-level" language dysfunction in PD including a significant inferencing deficit (i.e., drawing appropriate inferences from short narratives about social interactions) in midstage patients. Lewis, Lapointe, Murdoch, and Chenery (1998) found that patients with PD are at a disadvantage interpreting figurative language.

The Current Research

The purpose of the present study was to extend research on PD and language use by examining the production of politeness by PD participants. Although there has been some research demonstrating the existence of general pragmatic deficits in PD, no one has yet undertaken analyses of the production of politeness in PD. Such an undertaking is important because politeness involves language production capabilities, a sensitivity to the context, and an ability to match the two. Appropriate use of politeness strategies in particular requires the individual to compute Brown and Levinson's (1987) "weightiness" function; that is, to adjust one's language behavior on the basis of an assessment of the degree of imposition an act has on an interlocutor, degree of social distance between self and interlocutor, and degree of social power self and other holds in a given social context.

We used a variation of the politeness role-playing task we used in earlier research (Holtgraves & Yang, 1992). We had PD and control participants read scenarios in which they were asked to imagine being in situations in which they were to make a request of another person. Requests are a prototypically face-threatening act and hence a good place to look for politeness. Participants were asked to write out exactly what they would say in order to make each request, and their requests were examined in terms of their overall politeness and the specific superstrategy that was used. Two variables were manipulated: degree of imposition and relative

status. Our general hypothesis was that PD participants would tend to be less polite and less sensitive to variations in the context than nonimpaired participants.

Method

Participants

PD participants were 28 individuals (2 female; 2 non-White) diagnosed with idio-pathic PD (mean age = 66.5 years). The majority (>90%) were either Stage 2 or Stage 3 on the Hoehn and Yahr Scale ($M = 2.74$). Most (93%) of the PD participants had completed high school, with half (50%) having completed some college.

The patients' diagnosis was agreed on by a specialist in PD and at least one other neurologist. None of the patients were demented according to clinical examinations and Diagnostic and Statistical Manual of Mental Disorders, 4th edition (*DSM-IV*; American Psychiatric Association, 1994) criteria. All were on some form of dopaminergic medication and were tested while on medications with optimal effects (i.e., motor signs were well controlled). All patients were required to have had at least one computerized tomography or magnetic resonance imaging scan during their illness to rule out history of brain injury. Patients with Parkinsonism from known causes (e.g., encephalitis, trauma, carbon monoxide exposure, manganese poisoning, hypo-parathyroidism, a multi-infarct state, or medications [such as neuroleptics] interfering with dopaminergic functions) were excluded. Similarly, other degenerative diseases mimicking PD (e.g., striatonigral degeneration, progressive supranuclear palsy, or olivopontocerebellar degeneration) were excluded. Patients with PD with concurrent Alzheimer-like dementia were excluded. Other exclusion criteria included (1) an abnormal computerized tomography or magnetic resonance imaging scan showing basal ganglia atrophy or calcification and/or stroke; (2) for patients who had received levodopa for more than 1 year, a history of no response to levodopa even in the initial stages of the disease, as this would be consistent with striatonigral degeneration disorders other than PD; (3) the presence of pyramidal, downward gaze or cerebellar dysfunction on examination, as these would be consistent with other diagnoses such as multi-infarct state, progressive supranuclear palsy or olivopontocerebellar degeneration, respectively; and (4) others: (a) inability to obtain informed consent from patient because of an incapacity on the part of patient to understand purpose and risks of study, as these individuals are likely demented; (b) history of ongoing alcohol or drug abuse; (c) patients with a history of psychiatric or psychotic disorder and patients currently on antidepressant or antipsychotic medications as these medications may influence communication functions.

Medication information was obtained from each patient's records and levodopa equivalent dosages were calculated with 100 mg levodopa = 83 mg levodopa with a COMT inhibitor = 1 mg Pramipexole = 1 mg Pergolide. Levodopa equivalent dosages were later examined to assess the impact of medications on politeness.

Nonimpaired participants were 32 individuals (12 female; 7 non-White) (mean age = 56.3) recruited through the Movement Disorders Clinics of the VA New England Health Care System. All these participants reported histories of chronic illness not typically associated with cognitive dysfunction. Most (80%) reported histories of chronic low back pain. The rest reported histories of other chronic ailments such as diabetes, headaches, and migraine. All had completed high school, with the majority (80%) having completed some college. Hence, relative to the PD participants, the control group had more females, 37.5% versus 7.1%, $\chi^2 = 7.69, p < .05$, was younger, 56.3 versus 66.5 years, $t(58) = -3.74, p < .05$, more highly educated, 15.27 versus 13.93 years, $t(58) = 1.8, p < .1$, more ethnically diverse, 22% versus 7% non-White, $\chi^2 = 5.28, p < .05$, and scored higher on the Mini-Mental State Examination, 28.27 versus 26.57, $t(58) = 4.17, p < .01$.

Materials

The stimulus materials for this experiment consisted of a set of four scenarios. Each scenario (3-6 sentences) described a situation in which one interactant wants to make a request of the other interactant.¹ Participants were asked to imagine that they were the person who wanted to make the request and to write down exactly what they would say to do so. There were four versions of each scenario. For two versions, the recipient of the request was lower in status than the participant (low status version); for the other two versions, the recipient was equal in status to the participant (equal status version). For two versions, the request was large (high imposition), and for two versions the request was relatively small (low imposition). Status and imposition were completely crossed resulting in four versions of each scenario (see Table 1 for four versions of one scenario). Each participant saw four scenarios, one each of the resulting Status \times Imposition combinations. Across the experiment, an equal number of participants saw each version of each scenario. Scenario order was randomized for each participant.

Procedure

Participants were told that the purpose of the study was to examine how people perceive different situations and how they might phrase their remarks in those situations. After reading the instructions, participants completed one practice trial. For each scenario, participants were instructed to imagine themselves in a situation described by the scenario. They were then asked to rate (on 9-point scales) how much power the other person in the scenario had (1 = *much less power* to 9 = *much more power*) and how large the request was that they were to make (1 = *extremely small* to 9 = *extremely large*). These two items served as manipulation checks for the status and imposition manipulations. Other items (friendliness, closeness, intelligence) were included as fillers. After completing the rating scales, participants were asked to write down exactly what they would say in order to make a request.

Results

Request Coding

The requests provided by participants were coded in terms of which superstrategy was used and in terms of overall politeness. For coding the superstrategies, only the primary act was coded (in contrast, the overall politeness variable was based on the entire request). Two coders, blind to conditions, independently categorized each request act in terms of the four Brown and Levinson (1987) superstrategies (Bald, Positive Polite, Negatively Polite, Off-Record). The overall agreement rate was 81%, and discrepancies were resolved via discussion. Two other coders (blind to conditions) independently rated the *overall* politeness of the entire request on a 9-point scale (1 = *extremely impolite* to 9 = *extremely polite*). The two ratings (standardized item $\alpha = .70$) were combined to create an overall politeness index.

Manipulation Check

The perceived imposition of the request and the power of the other person were analyzed with a $2 \times 2 \times 2$ (Group \times Manipulated Power \times Manipulated Imposition) analysis of variance (ANOVA) with repeated measures on the last two variables. Both manipulations were effective. The large request ($M = 6.18$) was perceived as significantly larger than the small request (4.22), $F(1, 58) = 39.16, p < .001$, and the recipient was perceived as having greater power in the equal status condition ($M = 5.37$) than in the lower status condition ($M = 3.95$), $F(1, 57) = 52.19, p < .001$.²

¹Scenarios were also included in which participants were asked to indicate how they would phrase a negative opinion. Although this creates a face-threatening situation, the manipulation of face-threat was confounded with content because the more negative the opinion (based on the scenario description), the less polite the opinion would be rated (content). Because of this, these scenarios were not included in these analyses.

Overall Perceived Politeness

Participants did not always provide a codeable response because they sometimes described what they would say (e.g., “I would ask him to help”) rather than providing the actual words they would use to make the request. For politeness ratings, we included all participants who had at least three (out of four) codeable responses, and the missing (fourth) request was replaced with the mean of the three codeable requests. Politeness ratings were analyzed with a $2 \times 2 \times 2$ (Group \times Power \times Imposition) ANOVA with repeated measures on the latter two variables. Consistent with politeness theory, overall politeness was less when the recipient was lower in power ($M = 4.88$) than when he or she was equal in power to the participant ($M = 5.22$), $F(1, 44) = 3.61$, $p = .06$. The Group \times Power interaction was not significant, however, $F(1, 44) < 1$.

Imposition also had the predicted effect on politeness (large request: $M = 5.18$; small request: $M = 4.91$), although the difference was not significant, $F(1, 44) = 2.37$, $p < .14$. There was, however, a reliable Group \times Imposition interaction, $F(1, 44) = 4.17$, $p < .05$. Control participants were significantly more polite for a large request ($M = 5.47$) than for a small request ($M = 4.86$), $F(1, 26) = 7.93$, $p < .01$. In contrast, PD participants produced utterances that were roughly equal in politeness for the small ($M = 4.98$) and the large request ($M = 4.89$), $F(1, 18) < 1$. Unlike control participants, PD participants failed to vary the politeness of their requests as a function of request size.

One possible reason for this effect is that PD participants were relatively insensitive to variations in request imposition. This appeared to be the case as there was a marginally significant Group \times Imposition interaction for perceived request size, $F(1, 45) = 3.76$, $p < .06$. The difference in perceived imposition between the large and small request was much greater for the control participants (6.78 vs. 3.98) than for the PD participants (6.0 vs. 4.58).

Exploratory analyses were conducted with medication dosage (high vs. low) and severity (H-Y Stage 2 vs. H-Y Stage 3) included as factors. When dosage was included as a factor, there was a significant Power \times Dosage interaction, $F(1, 16) = 5.68$, $p < .05$. Politeness varied in the predicted direction as a function of power for PD participants who were on a lower dosage (5.32 vs. 4.34) but not for participants who were on a higher dosage (4.92 vs. 4.98).

Because there were significant differences between the PD and control groups in terms of age, education, and assessed mental status, analyses of covariance were conducted in which these three variables were included as covariates. All effects reported previously as significant remained significant ($p < .05$) in these analyses.

Superstrategy analyses—Parallel analyses were conducted for the superstrategies used for the requests. First, the distribution of superstrategies varied as a function of group classification (PD vs. control), $\chi^2(3) = 14.77$, $p < .001$. As can be seen in Figure 1, control participants produced more negatively polite requests than did PD participants, with the reverse occurring for the other three forms. Next, imposition was included as a variable, and the results are presented in Figure 2. The distribution of superstrategies as a function of classification was significant for the large requests, $\chi^2(3) = 16.15$, $p < .01$, but not for the small requests, $\chi^2(3) = 2.27$, $p > .05$. As can be seen in Figure 2, as request size increased, control participants increased their use of more polite strategies (negatively polite) and decreased their use of less polite strategies (direct and positively polite). PD participants, in contrast, did just the opposite,

²In addition, perceived request size varied as a function of manipulated power, $F(1, 58) = 8.92$, $p < .01$, with the request being perceived as significantly smaller ($M = 4.94$) when the recipient was lower in power relative to when she or he was equal in power to the participant ($M = 5.46$). Similar findings have been reported previously (e.g., Holtgraves & Yang, 1992) and reflect the intertwined nature of the interpersonal variables in the model.

slightly increasing their use of less polite strategies and decreasing their use of more polite strategies. These results, then, parallel the results for overall politeness. Control participants became more polite as request size increased; PD participants were not sensitive to this difference.

Discussion

Politeness provides a mechanism that allows speakers to pursue their goals while simultaneously managing their face and that of their interactants. This requires speakers to be attentive to the context (e.g., how threatening is this request? Is the recipient my superior or are we equal in status?), to possess knowledge regarding the various ways in which an act can be performed and to possess the ability to match the optimal strategy with the context. This can be tricky. For example, erring on the side of relationship maintenance might produce an utterance so ambiguous that one's intent is not at all clear. And, of course, erring on the side of clarity might result in offending the recipient, with negative consequences for the manner in which a speaker is perceived.

The results of the present research suggest that politeness is impaired in PD. The PD participants in this study, relative to nonimpaired participants, tended to prefer less polite forms overall. Although the overall rated politeness of the requests did not vary significantly, PD participants preferred direct and positively polite forms; nonimpaired participants preferred the more polite negatively polite forms. This was not simply a function of PD participants producing shorter requests than control participants. Although nonsignificant, the requests of the former were longer ($M = 30.42$ words) than the requests of the latter ($M = 25.32$ words). In terms of politeness variability as a function of the social context, PD participants were less influenced by the size of the request than were nonimpaired participants. That is, the latter produced more polite requests when the request was larger than when it was smaller. PD participants, on the other hand, did not vary their politeness in this manner. In terms of the effects of speaker status, the difference between PD and control participants was not reliable. However, sensitivity to status did vary significantly as a function of medication dosage. PD participants who were taking a lower dosage varied their politeness as a function of status in the predicted manner; PD participants in the high-dosage group did not.

What are the potential sources of the politeness impairment in PD? One possibility is that it reflects an overall decline in cognitive capabilities. Cognitive dysfunction is typically mild in early PD, involving a generalized slowing of cognitive processing speed (bradyphrenia) and subtle deficits in so-called executive cognitive functions or ECFs (Lange, Paul, Robbins, & Marsden, 1993; McNamara, Durso, & Harris, 2008; Owen et al., 1992; Taylor & Saint-Cyr, 1995; Troster & Woods, 2003). It is possible, then, that politeness deficits in PD are because of these executive deficits, which limit the cognitive resources available for language use. Reduced cognitive resources in PD could result in an attentional deficit such that variations in request size are not noticed; because they are not noticed, there is no corresponding change in politeness. There was some evidence for this in the present study.

Another possibility is that even when variations in the context are noticed, the cognitive capacities required to produce more polite (and cognitively complex) strategies is hindered in people with PD. There was also some evidence for this as PD participants, overall, produced fewer polite strategies than control participants. In addition, for participants on higher doses of dopaminergic medication, even though variation in recipient status was noticed, there was not a corresponding tendency to produce more polite strategies for a higher power recipient.

Higher doses of dopaminergic medications have been theorized to normalize dopamine levels in subcortical sites and "overdose" dopaminergic neurocognitive networks in cortical sites,

thus effectively impairing those networks (Cools, 2006; Gotham, Brown, & Marsden, 1988). It may be that the ability to generate more complex and polite strategies as a function of varying social contexts depends to some extent on dopaminergic prefrontal and other neocortical neurocognitive networks.

Whatever the underlying mechanism(s), the diminished politeness capabilities of people with PD contributes to the communication and interactional difficulties associated with this CDI. Previous research has documented problematic social behaviors in patients with PD (Crucian et al., 2001; Mathias, 2003; Menza, Golbe, Cody, & Forman, 1993). Social deficits in PD may involve inappropriate and ineffective attempts at communication, social withdrawal, personality and mood changes, sexual improprieties, ignoring doctor's orders/suggestions, irresponsible use of money (e.g., gambling away the family's savings), and a strange insensitivity to the social, moral, and personal consequences of inappropriate social behaviors. Some of these social deficits are no doubt because of the inability of people with PD to accurately assess the weightiness of their remarks in varying social contexts, and thus to phrase their utterances most effectively and appropriately.

In summary, we found that persons with PD evidence a significant deficit in the use of politeness during simulated social interactions. This politeness deficit may contribute to difficulties of patients with PD more generally during social interaction. Obtaining reliable data on social cognitive functions in PD is of fundamental clinical and theoretical importance. Clinically, social cognitive/behavioral deficits in PD increase caregiver burden (Caap-Ahlgren & Dehlin, 2002; Edwards & Scheetz, 2002), reduces quality of life (Global PD Steering Committee, 2002), and may compromise complex decision-making capacities around long-term care. Changes in the quality of social interactions, furthermore, may predate onset of overt extrapyramidal motor signs of PD by several years (Hubble & Koller, 1995; Mendelsohn, Dakof, & Skaff, 1995), and thus selected social cognitive deficits may predict risk for disease severity.

Acknowledgments

We thank Howard Giles and two anonymous reviewers for their helpful comments on this article.

Funding The authors disclosed receipt of the following financial support for the research and/or authorship of this article:

This research was supported by a grant from the NIDCD: "Pragmatic Language Skills in Patients with Parkinson's Disease," 1R01DC007956-01A2.

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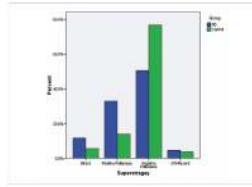


Figure 1.
Distribution of superstrategies for PD and control participants

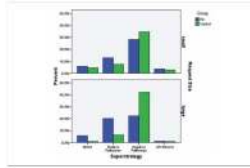


Figure 2. Superstrategy distribution for PD and control participants as a function of request size

Table 1

Sample Scenario

You are the president of (You work for) a real estate company that has just moved into a new office. *You* (You and your coworkers) have been busy getting everything arranged for your grand opening. You see that there is a *small room that is in need of a thorough cleaning* (small plant that is not getting enough light) and so you ask one of your *workers* (coworkers) to *clean it right away* (move it to the large window).

Note: The small request and lower power conditions were created by substituting the material in parentheses for the preceding italicized material.