Acceptability of Interventions to Staff in Long-Term Care Settings for Older Adults: Comparing Ratings and Hierarchical Selection

Jonathan C. Baker
Western Michigan University

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ACCEPTABILITY OF INTERVENTIONS TO STAFF IN LONG-TERM CARE SETTINGS FOR OLDER ADULTS: COMPARING RATINGS AND HIERARCHICAL SELECTION

by

Jonathan C. Baker

A Dissertation
Submitted to the
Faculty of The Graduate College
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requirements for the
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Department of Psychology
Advisor: Linda LeBlanc, Ph. D.

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Table of Contents—Continued

CHAPTER

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedures</td>
<td>28</td>
</tr>
<tr>
<td>Demographic questionnaire</td>
<td>28</td>
</tr>
<tr>
<td>Problem behavior vignette</td>
<td>29</td>
</tr>
<tr>
<td>Treatment descriptions</td>
<td>29</td>
</tr>
<tr>
<td>Treatment selection</td>
<td>31</td>
</tr>
<tr>
<td>Treatment questionnaire</td>
<td>32</td>
</tr>
<tr>
<td>III. RESULTS</td>
<td>33</td>
</tr>
<tr>
<td>IV. DISCUSSION</td>
<td>37</td>
</tr>
<tr>
<td>Summary and Future Directions</td>
<td>46</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>48</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>57</td>
</tr>
<tr>
<td>A. Human Subject Institutional Review Board Approval Letter</td>
<td>57</td>
</tr>
<tr>
<td>B. Consent Form and Demographic Questionnaire</td>
<td>59</td>
</tr>
<tr>
<td>C. The Adapted TEI-SF</td>
<td>64</td>
</tr>
<tr>
<td>D. Vignette Descriptions</td>
<td>67</td>
</tr>
<tr>
<td>E. Treatment Selection Questions</td>
<td>72</td>
</tr>
<tr>
<td>F. Treatment Use Questionnaire</td>
<td>77</td>
</tr>
</tbody>
</table>
LIST OF TABLES

1. Demographic Information for Participants ........................................... 24
2. Job Titles for Participants ........................................................................ 25
LIST OF FIGURES

1. Mean TEI-SF ratings for behavioral, sensory, and medical treatments ................................................................. 34

2. Mean selection percentage for behavioral, sensory, and medical treatments ............................................................. 35
CHAPTER I
INTRODUCTION

In 1978, Wolf argued that the future of behavior-analytic services depended heavily on the social importance of those services, noting that treatment goals must be socially significant, that behavioral intervention procedures should be socially acceptable, and that the therapeutic effects must be socially important. A significant body of research has looked specifically at measures of the social appropriateness of the intervention procedures for children, persons with developmental disabilities, and older adults (Carter, 2007; Elliot, 1988; Miltenberger, 1990; Osterkamp, Mathews, Burgio, & Hardin, 1997). This line of research, referred to as treatment acceptability research (Kazdin, 1980), has focused on aspects of treatments and raters (e.g., teachers, parent/guardians, physicians, social workers) that might influence treatment acceptability. Wolf conceptualized the appropriateness of the cost of the intervention, the ethicality of the intervention, and the practicality of the procedures as factors that contribute to judgments of intervention acceptability. He suggested that these aspects were related to whether the treatment should be done, the potential effectiveness of the treatment, and the likelihood that the treatment would be adopted and supported by others.

In the late 1980s and early 1990s, prolific use of physical and chemical restraints with older adults with behavior problems sparked several investigations into the acceptability of different behavioral and pharmacological interventions (Burgio, Cotter et al., 1995; Burgio, Hardin, Sinnott, Janosky, & Hohman, 1995; Burgio & Sinnott, 1989; 1990; Burgio, Sinnott, Janosky, & Hohman, 1992; Lundervold, Lewin, & Bourland, 1990; Lundervold, Young, Bourland, & Jackson, 1991; Osterkamp, Mathews, Burgio, &
In general, behavioral interventions were rated acceptable and were often rated higher than other typical interventions, including medication (Osterkamp et al., 1997). Despite the high acceptability ratings in these studies, behavioral interventions are still not reliably being used in nursing home settings where they might prove beneficial (Baker, Hanley, & Mathews, 2006; LeBlanc, Raetz, & Feliciano, in press). The purpose of the current project is to provide an overview of treatment acceptability research over the past three decades, noting advances in behavior analytic technologies for assessing and treating problem behavior, as well as advances in treatment acceptability assessment methodology, providing the impetus for the current investigation into treatment acceptability in geriatric populations.

Assessing Treatment Acceptability

Researchers have developed two methodologies for assessing treatment acceptability: analogue and clinical (Miltenberger, 1990). Each methodology has strengths and weaknesses and each has been used to investigate the various factors that impact treatment acceptability (discussed in detail later). The dominant methodology in experimental research is the analogue methodology while clinical research and practice make more use of the clinical methodology.

Kazdin (1980) developed the analogue research methodology for assessing treatment acceptability. The analogue methodology consists of providing participants with a written vignette describing a person engaging in problem behavior, and written descriptions of a number of different treatments specifically tailored to the vignette. Participants are then asked to rate the acceptability of each intervention using a treatment acceptability survey (e.g., the Treatment Evaluation Inventory; TEI; Kazdin). This
methodology has been shown to produce differential responding that is believed to reflect
differences in acceptability (Kazdin).

The analogue methodology became the modus operandi for treatment
acceptability research; however, it has been criticized for its ecological validity, which
precipitated development of a second assessment methodology involving direct
implementation of the intervention (Elliot, 1989; Miltenberger, 1990). This alternative
methodology was the clinical methodology. Reimers, Wacker, Cooper, and De Raad
(1992) were among the first to use the clinical treatment acceptability methodology. The
clinical methodology is similar to the analogue methodology in that participants read a
vignette, treatment descriptions, and then fill out an acceptability form. The clinical
methodology differs from the analogue methodology in that following the treatment
ratings, participants are trained to implement one of the interventions they previously
rated. Acceptability of the trained treatment is assessed at several points in the months
following the training with no systematic investigations into the optimal follow-up
interval. The clinical methodology has been shown to produce differences in ratings
when comparing pre-training to post-training ratings (Reimers et al.). Researchers have
argued that because the raters are actually implementing the intervention, the clinical
methodology is more naturalistic than the analogue methodology and therefore more
reliable (e.g., Reimers et al). There have not been any systematic investigations of
whether the results from the clinical methodology are more meaningful than those
obtained by the analogue methodology.

Both analog and clinical methodologies have used Kazdin’s (1980) TEI as an
acceptability survey, though other surveys exist. For example, Witt and Martens (1983)
developed an alternative scale, the Intervention Rating Profile-20 (IRP-20), for use with teachers during behavioral school consultation. This 20-item questionnaire with a six point likert-type scale has anchors ranging from strongly disagree (1) to strongly agree (6). Rather than phrasing the items as questions like the TEI, items are phrased as statements such as “Most teachers would find the intervention suitable for the behavior problem described,” and “This intervention would be appropriate for use before making a referral.” Subsequent research on treatment acceptability has employed one of these two assessments or a shorter variation of these assessments (Finn & Sladeczek, 2001). Shorter versions of the assessments, like the Treatment Evaluation Inventory-Short Form (TEI-SF; Kelley, Heffer, Gresham, & Elliott, 1989) have been shown to have similar reliability and validity. For example, using the factor analysis from the TEI as a basis for item selection on the TEI-SF, Kelley et al. demonstrated that a factor analysis of the TEI-SF revealed the similar two-factor structure as the TEI and found internal consistency measures for the TEI-SF ($\alpha = 0.85$) were similar to those of the TEI ($\alpha = 0.89, 0.97$), though the TEI-SF took less time to fill out and is written at an easier reading level. These newer, shorter assessments have shown promising results in clinical settings where quick assessments are necessary (Finn & Sladeczek).

Factors Influencing Treatment Acceptability

Reimers, Wacker, and Koepl (1987), Elliot (1989), and Miltenberger (1990) provided summaries of the early treatment acceptability literature. Subsequent reviews (e.g., Carter, 2007) indicate that recent studies have produced similar findings. In general, treatment characteristics such as the restrictiveness of the intervention, time necessary to implement the intervention, and the effects and side effects of the treatment can influence
ratings (Carter; Elliot; Miltenberger; Reimers et al.). In addition, the severity of the
problem behavior being treated, the specific characteristics of the client, and level of
knowledge of the rater (Carter; Elliot; Miltenberger; Reimers et al.) influence these
findings. The findings for each factor are summarized below.

Specific components of the intervention impact acceptability ratings. Reinforcement-based interventions, termed "positive" or "less restrictive" interventions include differential reinforcement of incompatible behavior (DRI), differential reinforcement of other behavior (DRO), token economies, non-contingent reinforcement (NCR) and stimulus control. Punishment or restraint-based interventions, termed "more restrictive" or "negative," include timeout (TO), overcorrection, restraint, response cost, medication, and shock. The majority of studies have found that "less restrictive" interventions (i.e., positive/reinforcement-based) are generally rated higher than "more restrictive" interventions (i.e., punishment-based) (Carter, 2007; Cowan & Sheridan, 2003; Elliot, 1989; Miltenberger, 1990). Specifically, DRI or DRO tend to be rated the highest, though some studies have found other interventions to be rated higher (e.g., stimulus control; Rasnake, Martin, Kenneth, & Mulick, 1993). Also, although medication, restraint, and shock are almost always rated the lowest of more restrictive interventions, medication tends to be rated higher than shock or restraint (e.g., Kazdin, 1980)

Although higher ratings for less restrictive interventions are the norm, they are not always the case. For example, Boothe and Borrego (2004) found response cost, TO, and overcorrection to be rated higher than reinforcement among parents of children with behavior problems. The authors hypothesized that this result was due to the parents
having had previous knowledge of behavioral interventions (i.e., since the problem behaviors were severe, they were more likely to use the faster acting, perhaps more efficacious interventions). Cowan and Sheridan (2003) found positive interventions with a reductive component to be more acceptable to parents following training for treatment for their child’s problem behaviors (acceptability ratings were obtained only after training and implementation). Both of these studies seem to suggest that knowledge about the interventions prior to administration of the rating assessment increases the ratings for more restrictive interventions. Additional information about behavioral interventions and training has resulted in increased acceptability of behavioral interventions in some studies (Elliot, 1989; Miltenberger, 1990). However, Rasnake et al. (1993) found that the rater’s pre-training level of knowledge about behavioral interventions did not appear to affect intervention ratings (i.e., all raters rated treatments moderately acceptable) though the “knowledge” they assessed may not have been directly pertinent to the interventions that were rated.

Other important treatment characteristics include the time requirements of the intervention and the complexity of the intervention. More time-consuming interventions generally receive lower acceptability ratings than less time-consuming interventions (Miltenberger, 1990). Tarnowski, Kelly, and Mendowlitz (1987) found that pediatric nurses familiar with behavioral interventions responded strongly to stated time commitments (i.e., minimal = <10 min per day; moderate = 15 min a day; maximum = 1 hr per day) for reductive interventions like ignoring, response cost, and TO (i.e., the longer the time commitment, the lower the acceptability rating). However, accelerative intervention (e.g., praise, token economy) acceptability ratings did not vary
systematically according to time commitment. Cowan and Sheridan (2003) hypothesized that a higher number of treatment components would lower the acceptability rating of parents and teachers. Following training to implement the interventions, teachers who were trained to implement more complex interventions provided higher ratings than teachers trained to use less complex interventions. Parent ratings did not vary by complexity, though parents did not actually implement any interventions. As with most studies using the clinical methodology, only one intervention was implemented and/or rated by the subjects so within-subject comparisons could not be conducted. If individuals were presented with and implemented multiple treatments of varying complexity, simple interventions might prove more acceptable.

Researchers have also assessed the impact of side effects and treatment efficacy of the intervention on acceptability. Kazdin (1981) found that more adverse side affects were associated with lower acceptability ratings. Elliot (1988) noted that the influence of treatment effectiveness varies. For example, Kazdin indicated that description of treatment effects as either strong or weak did not influence ratings while side effects did, but Von Brock and Elliot (1987) found that treatment effectiveness information did influence ratings. In addition, Von Brock and Elliot compared two types of treatment effectiveness information: teacher effectiveness information and researcher effectiveness information (i.e., the effectiveness of the intervention was presented from the perspective of a researcher or teacher, though the information was the same for both). Researcher effectiveness information positively influenced ratings for mild severity behavior.

Severity of the problem behavior can also impact treatment acceptability findings with more severe problem behaviors associated with higher acceptability ratings for all
interventions (Carter, 2007; Elliot, 1988; Miltenberger, 1990). Kazdin (1980) experimentally manipulated the severity of the problem behavior for both children described in his vignettes. Results indicated a small but statistically significant difference in ratings such that more severe problem behaviors were associated with more acceptable ratings, though the order of acceptable treatments did not change with reinforcement rated more acceptable than TO, medication, or shock. Generally, restrictive interventions are more acceptable for severe behaviors than for mild behaviors and less restrictive interventions are more acceptable for mild behaviors than for more severe behaviors (e.g., Miltenberger, 1989; Tarnowski et al., 1987).

*Treatment Acceptability in Geriatric Populations*

Several studies have examined treatment acceptability ratings for geriatric populations with strikingly similar results (Burgio, Cotter et al., 1995; Burgio et al. 1995; Burgio & Sinnott, 1989; 1990; Burgio et al., 1992; Lundervold et al., 1990; Lundervold et al., 1991; Osterkamp et al., 1997). All studies found generally higher ratings for positive behavioral interventions over negative behavioral interventions, medications, and restraint.

Burgio and Sinnott (1989) conducted the first of a series of studies of treatment acceptability for geriatric populations. All the studies in this series used an analog methodology, providing a packet with vignettes, treatment descriptions, and the adapted TEI (a slightly modified version of the TEI). All manipulated the degree of cognitive impairment (e.g., slightly confused vs. demented) for a client engaging physical aggression, verbal abuse, and non-compliance. The three treatments described were DRI, TO (10-min seclusion), and medication (Haldol®); each was described as effective.
Several important results were identified in this series of studies. Burgio and Sinnott (1989) found that younger undergraduate psychology students rated medication highest, followed by DRI and TO. Somewhat older undergraduate students and day center staff aged 60 and older rated DRI the highest, followed by medication, then TO. Although ratings did vary based on behavior severity, the overall order of acceptability did not change. Thus, like the general literature, interventions were rated higher for more severe behaviors and lower for less severe behaviors. Other studies confirmed these findings (e.g., Burgio & Sinnott, 1990; Osterkamp et al., 1997). Burgio and Sinnott (1990) also found that for cognitively intact older adults, on the cognitively impaired vignette medication was rated higher than TO, suggesting that more restrictive interventions were deemed more acceptable as cognitive impairment increased. Another variable that appears to affect acceptability of TO and medication is place of residence. Burgio et al. (1992) found that for physicians, medication was rated significantly higher for the community dwelling vignette than for the nursing home vignette.

Lundervold et al. (1990) administered treatment acceptability packets to 24 older adults that included the Treatment Acceptability Survey (TAS), which would later be called the Geriatric Treatment Acceptability Survey (GTAS). The GTAS contained five vignettes with a man, aged 65-85 years, living at home with family members. Eight interventions were described: a) physical restraint; b) medication; c) counseling; d) non-contingent attention (NCA); e) DRO (length of interval was not reported); f) reprimand; g) simple correction (apologizing or picking up materials); and h) TO (interval was not reported). No differential results were found between acceptability and behavior. A significant difference in treatment rating was obtained. The treatments in order from most
to least acceptable were NCA, DRO, counseling, reprimand, TO, simple correction, medication, and restraint. Because the GTAS used a different scale (1-6) and the authors did not report a) the total possible points or b) average scores from the participants, no direct comparison can be made between their results and those of Burgio and colleagues.

Two studies focused on acceptability ratings of nursing home staff and factors that influence acceptability. Lundervold et al. (1991) administered the GTAS to 46 geriatric nursing home staff. However, because the goal of the study was to determine psychometric properties of the GTAS, no data were reported regarding acceptability. Burgio, Hardin et al. (1995) administered the adapted TEI to nurses’ assistants, family caregivers, and resident relatives. They found no differences in order of treatment acceptability compared to previous studies. Although family caregivers and resident relatives rated DRI higher when compared to nurse assistants, nurse assistant ratings were comparable, or slightly lower (less than 6 points) than DRI ratings by others (Burgio & Sinnott, 1989; Burgio et al., 1992).

Summary of Findings

Across the entire field of behavior analysis, several findings have been noted. The severity of behavior, the restrictiveness of the intervention, time necessary to implement the intervention, side effects, and the effectiveness of the treatment have all been shown to systematically influence treatment acceptability ratings. Some studies have shown that treatment acceptability findings with one population do not necessarily generalize to other populations (Rasnake et al., 1993). Within behavioral gerontology specifically, findings indicate that the severity of behavior, cognitive ability, and type/place of
residence play important roles in treatment acceptability. No manipulations have been made regarding the effects of treatment effectiveness or side effects.

Relevant Advances in Treatment Technology and Research Methodology

There have been several advances in intervention programming such that the treatments investigated in earlier studies no longer reflect current practice in behavior analysis or in medicine. Behavior analysis has adopted function-based treatments as best clinical practice (Carr & LeBlanc, 2003), while medicine has turned to atypical antipsychotic medications (Schneider, 1999). Also, there have been no investigations into sensory-based interventions, which have grown in popularity in recent years (Burgio & Fisher, 2000). Finally, researchers have advanced the analogue methodology through variations in the way the information is presented and collected. Thus, despite a significant body of research on treatment acceptability in geriatric populations, the treatments and methodologies are outdated and warrant revisiting.

*Function-based treatments.* Perhaps the most important treatment advancement in behavior analysis over the past 20 years has been the development of functional assessment methods and function-based treatments for problem behaviors. Function-based interventions address the putative reinforcing effects of a consequence. Addressing these effects reduces the likelihood of engaging in aberrant behavior to obtain the functional reinforcer while increasing the likelihood of an alternative desired behavior (i.e., addressing the response-reinforcer relationship, rather than attempting to overpower it; Carr, Coriaty, & Dozier, 2000).

As a strategy for systematically determining the maintaining variables for a behavior, Iwata, Dorsey, Slifer, Bauman, and Richman (1982/1994) developed a
functional analysis procedure in which hypothesized maintaining consequences would be systematically presented contingent on the specified behavior. The three maintaining variables typically manipulated in a functional analysis are social reinforcement (e.g., attention), automatic reinforcement (e.g., sensory stimulation), and negative reinforcement (e.g., escape) (Iwata, Kahng, Wallace, & Lindberg, 2000). Recent studies in behavioral gerontology have confirmed that problem behaviors of adults with dementia are maintained by social attention (Buchanan & Fisher, 2002; Dwyer-Moore & Dixon, 2007) and escape from demands/caregiver proximity (Baker, Hanley, & Mathews, 2006; Dwyer-Moore & Dixon). Despite a general trend in behavior analysis toward function-based treatments (Carr & LeBlanc, 2003; Hanley, Iwata, & McCord, 2003), none of the treatment acceptability studies on geriatric populations included descriptions of behavioral function or function-based treatments.

A few studies have specifically examined the acceptability of function-based treatments with other populations (McCausland, Grey, Wester, & McClean, 2004). These studies have been conducted with direct care staff for individuals in mental retardation settings (e.g., Hastings, Boulton, Monzani, & Tombs, 2004; Miltenberger & Lumley, 1997), with special and regular education teachers (e.g., Jones & Lungaro, 2000; Weigle & Scotti, 2000), and with undergraduate college students (Hastings et al.; McClausland et al.). In general, studies have shown that when the behavior is described as being maintained by attention, participants rate the function-based treatment the highest. Such interventions, however, are generally DRI or DRO procedures (e.g., Jones & Lungaro; McClausland et al.; Weigle & Scotti) and constitute the intervention that would require the least time and effort (e.g., Jones & Lungaro; Miltenberger & Lumley). Given what is

12
known about the acceptability of DRI and DRO procedures, as well as lower effort interventions, it is difficult to be certain that such interventions were rated highest because of behavioral function.

When the behavioral function is escape, the results are mixed. Miltenberger and Lumley (1997) gave one group of participants information about TO and guided compliance as treatments for aggressive behavior maintained by attention while a second group received the same information but for aggressive behavior maintained by escape. TO, a reasonable function-based intervention for attention maintained problems, was always rated higher, though TO is a contra-indicated non-function-based intervention for escape maintained problems. Weigle and Scotti (2000) provided raters with differing information about functions of behavior (i.e., general descriptive information, escape function information, and attention function information) and then had them rate six treatments (brief interruption, communication training, contingent noxious stimulation, differential reinforcement, exclusionary TO, and social disapproval). Results of the treatment ratings indicated that differential reinforcement (social attention) was rated highest, regardless of the type of information provided to participants (i.e., no function identified, attention function or escape function identified) or whether information about the function of behavior suggested that the intervention was contra-indicated. These two studies seem to suggest that escape function-based interventions are not rated most acceptable for escape maintained behaviors. Perhaps even more important, these studies seem to suggest that information about function and the match with functional interventions was irrelevant; treatments seem to have been selected based on level of intrusiveness and effort.
Hastings et al. (2004); however, found somewhat different results. They examined treatment acceptability for two groups of raters: a) students inexperienced in working with persons with mental retardation and b) direct care staff in a private residential service for persons with mental retardation and challenging behavior and/or autism. Treatments presented to the raters were the same as those used by Weigle and Scotti (2000) but Hastings et al. included open-ended questions about behavior function. Results of the open-ended questions revealed that raters correctly identified behavioral function for the attention maintained behavior 74% of the time and correctly identified behavioral function for the escape condition 71% of the time. Both students and staff rated communication training as the most effective intervention for both behavioral functions. Communication training was the function-based intervention for escape and most likely for attention, though no direct information was provided about the topography of reinforcer in communication training. Thus, raters seemed to be rating interventions based on the match of behavioral function and the function-based intervention. However, contraindicated interventions were also rated high (e.g., brief break in which the teacher stops the activity and encourages the student to work on the activity was rated high for the escape function video). Thus, although the participants were able to identify function, they were not opposed to treatments that were contraindicated.

The results of studies on function-based treatments are mixed. Participants consistently rated function-based interventions most acceptable for attention maintained behaviors (Hastings et al., 2004; Jones & Lungaro, 2000; Mc Clausl and et al., 2004, Miltenberger & Lumley, 1997; Weigle & Scotti, 2000). However, these results are
confounded because ratings for the functional interventions for attention-maintained behavior would be expected to be higher regardless of functional information, given current information about treatment acceptability (Carter, 2007; Miltenberger, 1990). In 2 out of 3 studies (Miltenberger & Lumley; Weigle & Scotti), participants did not rate the function-based intervention most acceptable for escape maintained behaviors. The only study that did find the function-based intervention most acceptable for escape maintained behaviors also showed that function-based interventions and contra-indicated interventions were both rated as acceptable/effective. Therefore, more research is needed regarding treatment acceptability and function-based treatments.

*Psychotropic medication advances.* Although the Omnibus Budget Reconciliation Act (OBRA) of 1987 mandated that behavioral interventions be used prior to chemical restraints, medication is still the most common intervention for behavior problems in nursing home settings (Baker et al., 2006, LeBlanc et al., in press, Wang et al., 2005). Therefore, it is important that medications be included in treatment acceptability studies. All of the studies on geriatric treatment acceptability that included medication used typical neuroleptics like haloperidol (trade name Haldol®). However, typical neuroleptics have been shown to produce only moderate decreases in hallucinations, paranoia, agitation, and aggression in individuals with dementia (Schneider, 1999). In clinical trials, haloperidol has been associated with many side effects that often out weigh treatment gains, including extra-pyramidal symptoms (EPS), tardive dyskenisia, drowsiness, and increased risk of death (Liperoti et al., 2003; Schneider, Wang et al.).

Atypical neuroleptics are now used more often than typical neuroleptics because they have the same dopamine effects, but also have other effects on dopamine receptors,
can block several types of serotonin receptors, and generally have milder side effects (Schneider, 1999). Although the atypical neuroleptics usually do not have the same severe side effects of typical neuroleptics, the Food and Drug Administration (FDA, 2005) issued a statement that atypical neuroleptics are associated with an increased risk of death and noted that none are approved for use with older adults with dementia. Despite this warning, atypical neuroleptics are still commonly used to control behavior in older adults with dementia though they appear to have limited effects on behavior (Carson, McDonagh, & Peterson, 2006). Atypical neuroleptics include risperidone (trade name Risperdal®), clozapine (trade name Clozaril®), quetiapine (trade name Seroquel®) and olanzapine (trade name Zyprexa®). In clinical studies, risperidone has been shown to decrease aggressive behaviors as measured by the Behavioral Pathology in Alzheimer’s disease scale (BEHAVE-AD; a measure of aggression; Reisberg, Auer, & Monteiro, 1996) by 3-50% and on the Cohen Mansfield Agitation Inventory (CMAI: Cohen-Mansfield, Marx, & Rosenthal, 1989) by only 1-5%, though such reductions were statistically significant (Brodaty et al., 2003; Cummings & Knopman, 1999; De Deyn et al., 1999; Katz et al., 1999). It is unclear from these studies whether these statistically significant reductions were clinically important (i.e., whether results were adequate to improve quality of life or effects on caregiver burden) (Carson et al.).

Other interventions. In response to federal guidelines set forth by OBRA (1987) and FDA (2005), several alternatives to medication that are not based on an operant paradigm have been developed to address agitation in older adults. One growing trend in treatment for agitation in older adults with dementia is the use of sensory-based interventions. Although such interventions are not more effective than medical
interventions when comparing the results from different studies investigating one or the other intervention (De Deyn et al., 1999; Lyketsos, Veiel, Baker, & Steel, 1999), they do represent a safer, less restrictive alternative to medication. One common type of sensory-based intervention is stimulation therapy, which typically involves increasing or decreasing environmental stimulation. A common stimulation therapy involves providing music in a quiet setting to decrease problem behaviors (Burgio & Fisher, 2000). Another sensory-based intervention, which came out of geriatric psychiatry, is bright light therapy (Ancoli-Israel et al., 2003). Also known as circadian therapy, it is designed to address poor sleep and lack of exposure to sunlight, both of which are common in older adults with dementia living in nursing homes and are believed to be related to aggression (Lyketsos et al.). Circadian therapy involves exposing the participant to a specific light (10,000 lux) for a specified duration (typically less than one hour) (Lyketsos et al.). Although some research suggests that stimulation therapies result as much as 30% reductions in aggression (Burgio & Fisher), circadian therapy has not been found to significantly decrease aggression (Lyketsos et al.).

Methodological advancements. In addition to advances in treatment technology, there has been at least one methodological advance in the treatment acceptability literature that warrants further research. The use of multimedia presentation of vignettes appears, in initial studies, to produce an impact on ratings. Martens, Witt, Elliot, and Darveaux (1985) were the first to show that a video vignette could increase acceptability ratings of more restrictive interventions for problem behavior, though the difference in ratings when vignettes were presented in video format versus when they were presented in textual format was not statistically significant. Foxx, McHenry, and Bremer (1996) and
Foxx, Bremer, Shultz, Valdez, and Johndrow (1996) also investigated the use of video vignettes. Both studies resulted in significant differences in ratings, with videos increasing the acceptability of more restrictive interventions. They argued that videos provided much more information than textual vignettes and therefore more closely approximated naturalistic settings (i.e., increasing the ecological validity of the assessment). Recent studies have also begun to include video vignettes, citing greater ecological validity (e.g., McClusland et al., 2004). However, video technology has never been used for treatment acceptability among geriatric service provider populations.

A simple but important methodological advancement was the inclusion of open-ended questions. Hastings et al. (2004) were among the first to include open-ended questions to inform their ratings results. The open-ended questions were scored with an acceptable level of reliability (86%) and were used to provide validity for the inclusion of function-based interventions in the Hastings et al. study. The inclusion of open-ended questions could also prove useful in investigating whether acceptability ratings are impacted by social desirability or "faking good". Kemp, Miltenberger, and Lumley (1996) noted that behavioral interventions are, in general, always rated high. They hypothesized that this may be the result of raters telling researchers what they want to hear (i.e., "faking good"). Kemp et al. therefore manipulated the form of the questions for each of three groups. One group was given the standard form of the TEI-SF, one was given a form in which the instructions told raters to think about how their bosses would want them to answer these questions, and a third group was told to please answer the questions how they would answer them, not how their boss would answer them. No differential effects were found. Kemp et al. noted that there could be two reasons for this
result: a) raters are telling the truth and they do always find behavioral interventions best or b) the different instructions were not effective discriminative stimuli. By using open-ended questions, researchers may be able to parse out social variables that result in raters rating some interventions higher than other, as well as what variables might cause a rater to choose one intervention over another. Such variables, including availability, cost, and training, are not currently assessed and may have a significant impact on whether behavioral interventions are adopted in long term care settings.

One additional methodological manipulation is worthy of investigation, though no studies have examined this manipulation yet. In previous research, raters have considered and rated each intervention individually, with no requirement to directly compare interventions or choose one intervention over another (i.e., direct paired selection or rank-ordering), which might result in more differentiated findings. A parallel can be seen in the developmental disability research on preference assessments. In the mid 1980's, Pace, Ivancic, Edwards, Iwata and Page (1985) developed a methodology for assessing preference by examining approach responses to individually presented stimuli. This preparation constituted a significant advancement for populations who could not easily communicate their preferences. However, subsequent research indicated that forcing participants to choose between two or more potentially preferred stimuli resulted in greater differentiation in preferences and increased correspondence with actual reinforcement effects (e.g., DeLeon & Iwata, 1996; Fisher et al., 1992). A similar approach might be applied to the treatment acceptability preparations to determine whether choice-based responses confirm the results of prior treatment acceptability studies, which used a single presentation and rating format.
Purpose of the Present Investigation

Several key points, drawn from the literature on treatment acceptability, demonstrate the need for additional research. Both advances in treatments and methodologies limit the applicability of early studies on treatment acceptability in geriatric populations to such populations today. First, behavioral, medical, and sensory-based treatments exist today that were not available when the early research was conducted. Research on function-based treatments indicates that using function-based interventions may affect the acceptability of behavioral interventions. Also, current workers in long-term care facilities may be more accepting of atypical antipsychotic use, due to current practice for medications prescribed to control behavior in dementia. However, even if the treatments are updated, results using single intervention ratings may not provide information that actually reflects treatment adoption in long-term care settings, which is usually heavily skewed toward medical interventions, in spite of the purported appeal of behavioral interventions. Second, improvements upon the analog methodology may prove useful in understanding variables that impact intervention adoption in long-term care. The use of video vignettes will bring an ecological validity to the literature on geriatric acceptability that until now has been missing. Also, the use of open-ended questions and treatment selections may help to assess the validity of treatment ratings.

The purpose of the present investigation was to expand upon previous geriatric treatment acceptability research by including treatment descriptions with function-based treatments, newer pharmacological interventions, and a combination of sensory-based interventions. It also expanded upon the overall literature of behavioral treatment
acceptability by making use of video vignettes and electronic versions of the TEI-SF. Long-term care staff that have direct contact with treatment decisions were asked to complete the treatment acceptability assessment online. After completing the assessment, staff members were asked to choose interventions they would most likely recommend to implement to deal with problem behaviors in their facility. Finally, participants were asked specific and open-ended questions regarding problem behaviors in their nursing home, the treatment selection process, as well as barriers to using other treatments. Both treatment selections and the results of the treatment questionnaire were compared to total scores from the TEI-SF to determine the extent to which acceptability ratings are related to treatment selections in an analog situation, and to what extent treatment ratings are related to the actual treatments used in nursing homes.
CHAPTER II

METHOD

Participants and Settings

Participants were recruited from nursing homes in the Midwest U.S. (Michigan, Ohio, Indiana, Wisconsin, Illinois, and Minnesota). Many participants were recruited via cold calling nursing homes, which resulted in 37 nursing home administrators agreeing to provide the link to their staff. In addition, contacts were established with the Michigan County Medical Care Facilities Council, Minnesota Alzheimer’s Association, The Michigan and Ohio Chapters of the American Health Care Association, and a private company contracting with nursing homes across the country. Each distributed a description of the study and the link to the survey via email or newsletter to a total of over 300 facilities and 400 individuals.

Though one hundred and thirty-one nursing home staff attempted the survey, only 53 completed every required question for the treatment ratings and treatment selection sections. Although 53 participants completed the entire survey, 56 participants completed all but the ratings and selections for the behavioral survey. Therefore, demographic information for these 56 participants is reported in Table 1 (since post-hoc analyses for correlations, described below, required only comparisons within-treatment, the three additional participants who completed ratings and rankings for sensory and medication, but not behavioral, were included in analyses for correlations). Table 2 shows the job title for participants by treatment (again, because correlations were completed within-treatment, three additional participants are reported for medication and sensory).
All assessments were administered via the Internet, thus, participants completed the survey from a computer in their home state. The Academic Technology and Instruction Service at Western Michigan University hosted the survey and exported the results into an excel spreadsheet. Therefore, there was no need for inter-observer agreement on the dependent variable, selection or rating responses. Procedural integrity was assessed once every week for the duration of the study (28 weeks) to ensure that the website was working and that information was being presented in the correct order. Procedural integrity was 100%.

Materials

The treatment acceptability survey and subsequent selection assessment were presented in a multi-media format. This multi-media format contained several components: a) a video vignette with a voice over description of the behavior; b) an
Table 1

Demographic Information for Participants

<table>
<thead>
<tr>
<th></th>
<th>Age</th>
<th>Sex</th>
<th>Years of previously encountered experience</th>
<th>Previously encountered aggression</th>
<th>Tx recommended in past year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>45.25</td>
<td>8 (M)/48 (F)</td>
<td>15.32</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>27-67</td>
<td>NA</td>
<td>1-37</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>10.3</td>
<td>NA</td>
<td>10.3</td>
<td>NA</td>
</tr>
<tr>
<td>Yes (N)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>56</td>
</tr>
<tr>
<td>No (N)</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>0</td>
</tr>
<tr>
<td>Job Title</td>
<td>Behavioral</td>
<td>Sensory</td>
<td>Medical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------</td>
<td>---------</td>
<td>---------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of Nursing</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrator</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Worker</td>
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<td>8</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Executive Director</td>
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<td>5</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RN</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Management Spc.</td>
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<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
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<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assistant Director of Activities</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of Activities</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LPN</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MDS Nurse</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Behavioral</td>
<td>Sensory</td>
<td>Medical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>------------</td>
<td>---------</td>
<td>---------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associate of Nursing</td>
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<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Director of Social Services</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation Therapist</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical Coordinator</td>
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<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
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<td><strong>56</strong></td>
<td><strong>56</strong></td>
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<td></td>
</tr>
</tbody>
</table>

*Three participants did not complete the behavioral ratings and selections, but did complete medical and sensory ratings and selections. Therefore, participant job title information is presented by treatment.*
electronic version of the treatment vignettes and TEI-SF (Kelly et al., 1989); and c) an electronic treatment selection questionnaire.

Video vignette. Researchers have argued that video vignettes are more ecologically valid than paper vignettes (Foxx et al., 1996). Therefore, video vignettes were used in the present investigation. The video contained a confederate older adult and a confederate nursing home staff member. The older adult, referred to as Margery, portrayed a 76 year-old woman. Although the confederate was ambulatory, she was in a wheel chair during all scenes. She was described as having mild to moderate stage Alzheimer’s disease. The confederate staff person portrayed a woman in her mid to late 40s.

The videos were shot using a Sony HDR-HC3 high-definition video camera. The camera captured the confederate older adult in the middle of the screen and the confederate staff member on the side. No panning, tilting, or zooming occurred during any of the videos. Each video was shot in unused rooms and bathrooms at a local day center for older adults. The videos were converted to Movie Picture Exchange Groups (M-PEG 3) using Macintosh Final Cut Express HD® and YASA MOV to MPEG Converter.

Adapted version of the TEI-SF. Only two treatment acceptability assessment tools have been used with geriatric populations: the GTAS and the TEI. Although the GTAS was developed specifically for older adult populations, the authors did not publish the assessment in any of the studies in which it was used, and no copies of the assessment exist today (D. A. Lundervold, personal communication, September 24, 2007). Burgio and colleagues used an adapted TEI to assess treatment acceptability in older adults and
populations who serve them. This version differs from the original TEI in wording only (e.g., making questions pertinent to older adults instead of children). However, due to the amount of time devoted to the video vignette, the additional treatment selection question, and the treatment questionnaire in the present study, a shorter assessment is warranted. Therefore, this study utilized the TEI-SF, a nine-item version of the TEI. Using the factor analysis from the TEI as a basis for item selection on the TEI-SF, Kelley et al. (1989) demonstrated that a factor analysis of the TEI-SF revealed the similar two-factor structure as the TEI and found internal consistency measures for the TEI-SF ($\alpha = 0.85$) were similar to those of the TEI ($\alpha = 0.89, 0.97$), though the TEI-SF took less time to fill out (and was found to be at an easier reading level). Because the TEI-SF was developed for use with parents of children with behavior problems, questions were adapted to reflect an older adult population (Appendix B) resulting in the adapted TEI-SF.

**Procedures**

The assessment was administered online. Participants were provided with a link to the website containing the assessment. Upon opening the webpage, participants were presented with information regarding consent (see Appendix A) and asked to provide consent before filling out the survey (if the person did not provide consent, they were not be allowed to fill out the assessment). They were also informed that if they consented to participate in the study, they were eligible to participate in a lottery in which seven $50 prizes would be awarded to randomly selected participants.

*Demographic questionnaire.* The first part of the assessment, prior to the treatment acceptability assessment, was the general demographic questionnaire (see Appendix A). Questions were yes/no, multiple choice, or alpha-numeric open-ended.
These questions included whether the participant was, or had been in the past six months, involved in treatment decisions for a resident with dementia who engaged in aggression. It also included age, gender, duration of employment at the nursing home, history of encountering aggression in the nursing home, and treatments usually implemented for aggression.

Problem behavior vignette. Each participant then watched a video showing an older adult engaging in aggression in a nursing home. This one-minute video showed Margery engaging in escape-maintained aggressive behaviors toward the confederate staff person. During the video, a voice-over described Margery and the behaviors in which she engaged (see Appendix C). The video was presented as a time lapse over the course of several days and contained several shots of Margery being aggressive in a number of areas and activities. Aggressive behaviors included hitting, pushing and kicking. To simulate escape-maintained aggression, Margery was only aggressive when a demand was placed on her or when the staff person touched her to help her with an activity.

Treatment descriptions. Following the problem behavior vignette video, auditory descriptions of the three treatments were presented while a picture of the treatment was on the screen. All treatments were described in non-technical terms (see Appendix C for specific descriptions) and a random numbers generator determined the order of presentation of the three treatments for each participant. Each treatment description video lasted one minute. After a treatment description was presented, the participant completed the adapted TEI-SF. The video of the treatment and the TEI-SF were on the same page, to
allow participants to review the treatment again if they desired. This continued until all
three treatments had been presented and rated.

The behavioral, function-based intervention was called communication training
and consisted of functional communication training (FCT). The visual that was presented
during the voice over was of Margery sitting in her wheelchair, handing the CNA a card
that read “please step back”. The treatment description (Appendix C) indicated to
participants that a psychologist had already worked with Margery to teach her to hand
staff a card asking them to back away, rather than hit. Communication training (i.e., FCT)
consisted of staff prompting Margery to use her card if she wanted a break before an
activity. If Margery became aggressive, staff again prompted her to ask for a break. As
soon as she did, the staff person was to remove materials or step away for 30 s. The
description also noted that the treatment was designed to address the fact that due to
Margery’s dementia, aggression had become the most effective way to ask for a break
and this intervention will give her a more appropriate response.

The sensory-based treatment, called light and sensory therapy, was a treatment
package consisting of circadian and stimulation therapy. The visual that was presented
during the voice over was Margery sitting in a reclining chair, looking at a “light” (a
paper laminator turned on its side to look like a tall rectangular light, similar to 10,000
lights) on a table next to her. The treatment description (Appendix C) stated that it was
developed by an occupational therapist and was being used because Margery appears to
be “sun downing” (i.e., becoming more aggressive toward the end of the day) and over
stimulated. Light therapy (i.e., circadian therapy) consisted of Margery sitting in front of
a special bright light (10,000 lux) for one hour every morning. Over the course of the
day, if she was aggressive, staff would implement stimulation therapy by taking her to her room to listen to classical music (i.e., contra-indicated for escape maintained aggression). The description also noted that the treatment was designed to address the fact that, due to Margery’s dementia, her sleep cycle was off and she had difficulty handling over-stimulating situations; this intervention would reduce stimulation and help regulate her sleep schedule to address “sun-downing.”

The medication treatment consists of an atypical neuroleptic, Risperdal®, being prescribed at a 1.0 mg/day dosage. The visual that was presented during the voice over was Margery sitting in her wheelchair putting a “pill” (a single tablet of Tums®) in her mouth, with the nurse handing her a cup of water. The treatment involved the administration of the medication and checking certain physiological signs for side effects or complications. The treatment description (Appendix C) stated that it was prescribed by Margery’s doctor after several medical tests determined that Margery’s Alzheimer’s disease has progressed, producing aggression. It also stated the potential side effects of the medication. The description noted that the treatment was designed to address neurochemical changes in Margery’s brain due to the deteriorating effects of Alzheimer’s disease by regulating those neurochemicals.

*Treatment selection.* Following the three separate treatment acceptability rating assessments, participants completed the treatment preference portion of the study (Appendix D). Participants were be provided with a brief review/summary of each intervention before being asked to select which treatment he or she would select as the course of action they would most likely recommend for others to implement with Margery if she was a resident in their facility. In addition to the three interventions
described above, an additional option of referral to another facility was included. No description of the referral treatment was provided, as there was no formal training necessary to refer a patient to another facility. During each presentation, the participants were presented with two treatments and the option to select neither. Once a participant selected an option, another combination of two treatments was presented along with the option for neither. This continued until all four treatments/courses of action were paired with every other treatment/course of action and a neither option. This presentation simulated a paired stimulus preference assessment where two possible options are all presented simultaneously and every option was paired with every other option (Fisher et al., 1992).

*Treatment questionnaire.* Following treatment selection, participants completed the treatment questionnaire (Appendix E). Questions were in yes/no, multiple choice, and alpha-numeric open-ended format. Once the entire assessment was completed, a final screen thanked participants for their time and participants were redirected to another survey, which collected their email address that was to be entered into the lottery. On average, completion of the entire study took about 21 minutes (range = 5 – 83 minutes).
CHAPTER III

RESULTS

Chronbach’s alpha was calculated for the adapted TEI-SF to evaluate the reliability (i.e., internal consistency) of the measure. Obtained Chronbach’s alpha for the reliability of the adapted TEI-SF was 0.857, similar to that obtained for the TEI-SF (Kelley et al., 1989). A one-way ANOVA was conducted on the mean total acceptability scores for the treatments to determine any significant differences in means. The obtained F (0.809) was not significant when compared to the critical F ($F_{2,53} = 3.17$). Figure 1 shows a bar graph of the means for each treatment. A similar analysis was conducted for the mean selection percentage for the treatments (see Figure 2). The obtained F (37.485) was significant when compared with the critical F ($F_{2,53} = 3.17$) indicating that at least one condition was different from the others. Therefore, post hoc tests were run to identify the important differences. Levene’s test for homogeneity of variance resulted in a significant result (i.e., variance was not homogenous), so Tamhane’s T2 was calculated. None of the three treatments (FCT, sensory, medical) differed significantly from each other, though each was significantly different than referral or neither, which were not significantly different from each other.
Figure 1. Mean TEI-SF ratings for behavioral, sensory, and medical treatments. The dashed line corresponds to a mean total score of 27 and a classification of neutral.
Comparisons were also made between the total treatment acceptability score and the selection percentage for all participants. Pearson product moment correlations were calculated to determine the degree and direction of the relation between acceptability scores and treatment selections. The correlation between all treatment ratings and all treatment selections (N = 165: 56 + 56 + 53, as each participant completed three sets of ratings and selections that could be compared) was $r = 0.192 \ (p = .017)$, a statistically significant finding. Comparisons between rating and selection were also made for each treatment. The correlation for FCT ratings versus selection percentage (N = 53) was $r = 0.298 \ (p = .035)$, achieving significance. For sensory ratings versus selection percentage
(N = 56), \( r = -0.045 \) (\( p = 0.749 \)) and was not significant. For medical ratings versus selection percentage (N = 56), the correlation also achieved significance with \( r = 0.304 \) (\( p = 0.028 \)). Thus, ratings were significantly correlated with selection for FCT and medical treatments but not for sensory treatments.

Comparisons were also made among selection percentage and question 2 on the TEI-SF ("I would be willing to use this procedure if I had to change an older adult's problem behavior"). The correlation of FCT question 2 ratings versus selection percentage (N = 53) was \( r = 0.296 \) (\( p = 0.037 \)). For sensory question 2 ratings versus selection percentage (N = 56), \( r = -0.030 \) (\( p = 0.832 \)). For medical question 2 ratings versus selection percentage (N = 56), \( r = 0.274 \) (\( p = 0.050 \)). Thus, question 2 ratings were significantly correlated with selection percentage for medication and FCT ratings, while the relation between the measures did not approach significance for the sensory condition.

Finally, Point Bi-Serial correlations were run to determine the degree and direction of the relation between treatment ratings and the dichotomous (i.e., yes or no) measure of treatments used in the nursing home. No treatment use questions were significantly correlated with treatment ratings and only one treatment use question was significantly correlated with treatment selection percentage. The question, "If it [the behavioral treatment] was not successful, was another form of behavioral treatment used prior to medication?" was highly correlated with selection of FCT \( (r = 0.430, p = 0.016) \), indicating that higher selection percentages were related to answering yes, rather than no, on this question.
CHAPTER IV
DISCUSSION

Burgio and Sinnott (1989) conducted the first in a series of studies looking at treatment acceptability in geriatric settings comparing DRI, TO, and medication. Development of new interventions over the past two decades created a need to update the acceptability literature with older populations. Additionally, the published literature on treatment acceptability exclusively used ratings scales without measures of actual treatment adoption. Development of assessment technology tools such as forced choice selection procedures and video presentation technologies also created a need to update the acceptability literature. The current study attempted to incorporate new interventions with a new population and new technology to re-evaluate treatment acceptability for interventions with nursing home residents.

Nine previous studies used the analog methodology and ratings of treatment acceptability in the behavioral gerontology literature comparing DRI, TO, and Haldol® as interventions. In general, DRI (typically rated as “agree”) was always rated higher than TO and Haldol® (ranging from “disagree” to “neutral” to “agree”). One finding in the present analysis was there was no differentiation between treatments with each treatment’s mean rating at approximately 27 or neutral. Such results seem to contradict previous research, but can be understood in the context of changes in geriatric care since the original studies including changes to treatments and methodology.

In the original studies on acceptability in geriatric settings, the medication presented was always Haldol®, a typical anti-psychotic medication with a severe side effect profile (Liperoti et al., 2003; Schneider, 1999; Wang et al. 2005). The current study
used Risperdal®, an atypical anti-psychotic with a much less severe side effect profile (Schneider). Risperdal® was endorsed as a medical intervention used in the prior six months for 28 of the 37 respondents indicating that Risperdal® and its milder side effect profile was probably quite familiar and acceptable as a medication used to control behavior.

Previous research used a punishment procedure in comparison to DRI and medication with no option for a sensory treatment. Research has shown that sensory treatments are as effective as medication (though the effects are not long lasting) and that there is a growing trend in the use and popularity of such interventions (Burgio & Fisher, 2000). The fact that sensory treatments are a viable alternative to restraint (OBRA 1987), coupled with using a function-based behavioral treatment that was topographically different from what most participants had experienced (e.g., providing activities and redirection) may have decreased the saliency of the behavioral intervention as the most acceptable intervention for the older adult in the vignette.

Another variation in the current study from previous research was the inclusion of a function-based behavioral treatment. Previous studies presented behavioral treatments that were not necessarily function-based. That is, no contextual cues were ever provided in the problem behavior vignette that would indicate if the treatment was designed to address the putative response-reinforcer relationship or whether the treatment was designed to overpower that relationship. In areas other than behavioral gerontology, researchers have provided such information (Hastings et al., 2004; Jones & Lungaro, 2000; McClausland et al., 2004; Miltenberger & Lumley, 1997; Weigle & Scotti, 2000). When the treatment was designed to address an escape function, 2 out of 3 studies
indicated that the function-based treatment was not rated as the most acceptable treatment. The current study did not include a non-function-based behavioral treatment to allow for such a comparison, but based on the acceptability ratings, the function-based treatment was rated second most acceptable, following a treatment that involved a contraindicated component. Some caution is necessary when interpreting such results: given the lack of training in behavioral principles, it is unlikely that the function of the behavior played a role in treatment ratings.

Previous research focused on several populations when analyzing treatment acceptability in behavioral gerontology, including physicians (Burgio et al., 1992), community dwelling elders (Burgio, Cotter et al., 1995), elders in residential settings (Burgio & Sinnot, 1990), relatives (Burgio, Hardin et al., 1995), and social workers (Osterkamp et al., 1998). Only two studies looked at nursing home staff (Burgio, Hardin et al.; Lundervold et al., 1991), both of which focused on direct care staff. This study is the first to specifically target people who make treatment decisions in nursing homes. As evidenced by Table 2, the majority of these persons were administrators and nurses. Table 1 shows that over 80% of the participants reported experience recommending all of these treatments in the past year. Burgio, Hardin et al., the only other study to report results of surveying acceptability in nursing staff, found that nursing staff acceptability was slightly lower than relatives of elders for treatments. Thus, it may be that people who have experience with treatments rate them lower than others, which may also account for the lower overall acceptability ratings of the treatments.

In addition to updated treatment descriptions, function-based behavioral treatments, and different participants, certain details in the vignettes and descriptions
were included to counterbalance details that have been shown to stack acceptability in the
direction of one treatment. The addition of such details may account for the leveling
effect of acceptability ratings in accordance with findings from previous research in
behavioral gerontology and more general acceptability literature (Carter, 2007; Elliot,
1988; Miltenberger, 1990). For example, Margery was presented as having dementia and
living in a nursing home. Burgio and Sinnott (1990) found that cognitive impairment in
community dwelling older adults increased the acceptability of more restrictive
treatments. Burgio et al. (1992) found that cognitive impairment increased the
acceptability of medication for nursing home dwelling older adults but decreased the
acceptability of DRI and TO. Burgio et al. also found that living in a nursing home
decreased the acceptability of medication, but increased the acceptability of DRI and TO.
Thus, the effects of living in a nursing home may have potentially negated the advantage
of medications, whereas presenting Margery as having dementia may have negated the
advantages of behavioral interventions.

In the general treatment acceptability literature, researchers have identified
several details that have also resulted in stacking acceptability in the direction of one
treatment over another. For example reinforcement-based treatments (e.g., FCT) have
been found to be more acceptable while restraint-based treatments (e.g., medication) have
been found to be less acceptable (Carter, 2007; Elliot, 1989; Miltenberger, 1990; Reimers
et al., 1987). This potential stacking in the direction of the behavioral intervention was
countered by describing the amount of time it took to train the intervention. Medical
treatments take less training in preparation for delivery than sensory or behavioral
interventions, which should have resulted in medical treatments being more acceptable
than sensory and both should have been more acceptable than communication training (Tarnowski et al., 1987). Finally, all treatments were described as effective, which has been shown to either have no effect (Kazdin, 1981) or increase the acceptability of treatments (Von Brock & Elliot, 1987). The clinical significance of the effect was not reported to ensure that none of the treatments (e.g., the behavioral treatment) had an advantage over another (e.g., medical and sensory). In sum, the vignette and treatment descriptions included several details that have been shown to affect acceptability and when one detail resulted in stacking one treatment, another detail was provided that countered the stacking. Thus by combining accurate descriptions and details of interventions that have been shown to influence acceptability with updated treatment descriptions, the result was virtually undifferentiated ratings.

Although the initial finding of this study was that treatment ratings on the TEI-SF did not result in differentiation, a second finding was that treatment selection percentages did. Though not statistically significant, some differentiation emerged between the behavioral and sensory treatments and the medical treatment. Also of importance was the selection of referrals and “neither” which had never been examined in prior studies. Given that half of the 56 participants indicated that their facility did not have a special care unit (SCU) dedicated to caring for persons with dementia, a 10% referral selection is not surprising. Although not a course of action, per se, the “neither” option was selected 10% of the time. Three participants indicated they would not choose communication training or medication, four participants indicated they would not choose communication training or the sensory intervention, seven indicated they would not choose communication training or referral, three indicated they would not choose medication or
sensory, 11 indicated they would not choose medication or referral, and six indicated they would not choose sensory or referral. These results indicate that despite participants’ ratings of treatments, some would choose no treatment or referral over a particular treatment, suggesting that general acceptability ratings might not reflect actual treatment adoption because an important option (i.e., referral, none) is not sampled.

A third finding of this investigation was that Pearson product moment correlations were significant when comparing all ratings and selection percentages (i.e., N = 165), as well as when comparing ratings to selection percentage for FCT and medical, but not for sensory. Question 2 from the TEI-SF was significantly and positively correlated with FCT and medical selection percentages. Thus, ratings and selection percentages were significantly correlated for all but the comparison of sensory ratings and selection percentages. However, the highest correlation was only $r = .304$. These results call in to question the use of treatment acceptability assessments to inform our understanding of treatment acceptability and potential for treatment adoption; however, certain methodological limitations must be acknowledged.

The use of the analog methodology has been criticized for lacking ecological validity (Elliot, 1989; Miltenberger, 1990) and in an attempt to increase the ecological validity of the analog methodology, video vignettes replaced written vignettes (Foxx et al., 1996). However, one limitation to this investigation was that the methodology was still analog in nature meaning that participants did not actually implement the treatment following selection or rating. While over 80% of participants reported having recommended these treatments in the year prior to the study; there is no guarantee that
the behavioral, sensory, and medical treatments they recommended took the same form as those in this study.

Another limitation to the study is participant selection and self-selection. Many more nursing homes and participants were contacted than actually completed the entire survey, which creates the possibility that those who were contacted but did not complete the survey might have affected the results of the study. Along the same line, 130 people attempted the survey, though only 56 completed it (i.e., a 43% completion rate). Had all participants completed the survey, the results may have differed. Additionally, participants were only recruited from the Midwest portion of the United States while previous projects have recruited from the east coast or nationally.

Finally, the current study constituted an electronic version of the assessment, which had not previously been attempted. Nineteen of the 74 people who attempted the survey but did not complete it indicated that they were unable to get the problem behavior video vignette to work. Although this is a relatively small number (14%) out of the total 130, it may have resulted in an unplanned selection of technically savvy participants over technically naive participants. Interestingly, when compared to age and experience, the failure to get the video to work occurred differentially. Increased years experience in nursing homes was related to the video not working ($r = .298, p = .002$), meaning that the more experience a participant reported, the more likely the video did not work. Increase age, however, was negatively correlated with getting the video to work ($r = -.219, p = 0.48$). That is, the older a participant was, the more likely the video did indeed work.
Despite these methodological constraints, an important fourth finding resulted from the data such that there is some preliminary evidence that treatment selection may be the more accurate of the two measures. Support for this finding comes from two pieces of evidence. The first piece of evidence is the endorsement of referral and "nothing" courses of action during treatment selections. These options have never been presented with treatment ratings, but in theory should be comparable to a rating of 9 (i.e., a 1/strongly disagree on each of the nine questions) on the TEI-SF (or at least question 2), which would indicate strong disagreement with the acceptability and subsequent adoption of a treatment. Only two participants rated any treatment as a 9 (one participant rated FCT and medication as a 9 and did not rate the sensory intervention, while the other rated all treatments a 9). On the other hand, 22 participants selected referral or "neither" at some point in the treatment sections, indicating that though the majority would not rate a treatment with strong disagreement, they would not select a treatment once the option was presented (the participant mentioned above who rated all treatments a 9 selected FCT 100%, sensory 66%, and none 16%). The second piece of preliminary evidence that selections are a more accurate measure is the correlation between selections and treatment use. Participants were initially asked how many of the residents who have displayed aggression in the past 6 months received a behavior treatment. They were then asked if the behavioral treatment did not work, was another used before using medical treatments. The fact that treatment selections were positively correlated with answering yes while treatment ratings were not correlated with answering yes on this question indicates that treatment selections are more closely related to past behavior. That is, for those participants who indicated that they typically recommend behavioral interventions,
they tended to choose the behavioral intervention as the most likely course of action they would take during the treatment selection.

The results of the correlation between treatment ratings and selections present a conceptual issue as to why treatment ratings and treatment selections might differ. Due to methodological constraints, a definitive statement cannot be made as to which, if either, is a more accurate measure of adoption behaviors than the other. Therefore, it is only possible to hypothesize why ranking a treatment on a likert-type scale would not be more strongly related to selecting those same treatments from an array. One argument is that the TEI-SF total score represents a collection of factors, some of which are not related to treatment adoption (the focus of the treatment selection question). However, question 2 from the TEI-SF directly asks about treatment adoption, and was strongly correlated to the TEI-SF total score for FCT, sensory, and medical (r = .853, .908, and .909 respectively, with p < .0001 for all). Additionally, it is not unreasonable to assume that question 2 would be correlated with the treatment selection question, since both are directly related to treatment adoption. Question 2 was correlated with selection for FCT and medical, but not for sensory, and the degree of the relation for FCT and medical was not large enough to meet a power of .80. Thus, the most parsimonious conceptualization of why the results were not more closely related is that questions involving ratings sample a different repertoire than treatment selection questions and at this point, there is not enough evidence to determine which repertoire is tied to treatment adoption behaviors. Previous researchers have questioned the validity of the results obtained through treatment ratings (e.g., Kemp et al., 1996) but to date, researchers have not
questioned the validity of *ratings* as a way to sample behavior. The results of this study provide evidence that such questioning is warranted.

**Summary and Future Directions**

In summary, the first goal of the present investigation was to update the literature on treatment acceptability by updating the array of available treatments. The results of the current study demonstrate that an update of the treatments presented to participants was warranted as the updated treatments were rated differently than prior interventions. A second goal was to update the assessment methodology from uniform use of likert-type rating scales as a measure of acceptability but including actual selection responses. The results of this study indicate that the correlations between ratings and selections were not significant, bringing into question whether rating scales accurately measure treatment adoption and which measurement strategy provides researchers with the most useful information.

Treatment selections, in lieu of treatment ratings, represent only the first step toward identifying the contingencies that effect treatment selection. As noted earlier, the current methodology did not look at actual treatment adoption behaviors, so it is possible that attributing the treatment selection methodology with the more accurate methods may be premature. Further research is needed to determine: a) whether ratings or selections are more accurate; and if selections are more accurate, b) if any modifications are necessary to further accurately capture behavior. One methodology that may assist in this analysis is the use of modified concurrent chains assessments. Hanley, Piazza, Fisher, and Maglieri (2005) used the modified concurrent chains methodology to assess preference for treatment in persons with developmental disabilities engaging in self-injurious
behavior (SIB). However, the majority of demonstrations looking at the modified concurrent chains assessment have dealt with only a few individuals, many of who have had some sort of developmental disability. Recently, Layer, Hanley, Heal, and Tiger (2008) assessed preference in a group of typically developing preschool children in the context of a group setting, rather than by individual. Such a methodology might be an efficacious model for determining treatment adoption. Additionally, in situations where behavioral interventions are not adopted, researchers can begin to determine manipulations that can influence adoption (e.g., Hanley, Iwata, & Lindberg, 1999). Whether such methodologies are practical or viable in nursing home settings is something for future research to determine. Regardless, the results of the current study provide the impetus to begin to prod further into treatment acceptability methodology.
REFERENCES


Appendix A

Human Subjects Institutional Review Board Approval Letter
Date: September 10, 2008

To: Linda LeBlanc, Principal Investigator
    Jonathan Baker, Student Investigator for dissertation
    Paige Raetz, Student Investigator

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 08-03-02

This letter will serve as confirmation that the changes to your research project "Acceptability of Interventions to Staff in Long-Term Care Settings for Older Adults: Comparing Ratings and Hierarchical Selection" requested in your memo dated 9/9/2008 (add Minnesota nursing homes to the sources of participants) have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: March 11, 2009
Appendix B

Consent Form and Demographic Questionnaire
Anonymous Survey Consent Form

You are invited to participate in a research project entitled "Acceptability of Interventions to Staff in Long Term Care Settings for Older Adults: Comparing Ratings and Hierarchical Selection" designed to analyze the attitudes and preferences for treatments for aggression in persons with dementia living in long-term care settings. The study is being conducted by Linda A. LeBlanc, Ph. D. and Jonathan C. Baker, M. A., from Western Michigan University, Department of Psychology. This research is being conducted as part of the dissertation requirements for Jonathan Baker.

This survey is comprised of 45 multiple choice and open-ended questions and will take approximately 15-25 minutes to complete. You will be asked to read, evaluate, and select potential interventions.

Your replies will be completely anonymous and cannot be traced back to the facility you work for. You may choose to not answer any question and simply leave it blank. If you choose to not participate in this survey, you may close your web browser at any time. Submitting the survey once you have filled it in indicates your consent for use of the answers you supply.

If you choose to complete the survey, you will have the opportunity to participate in a drawing for one of seven $50 prizes. At the end of the survey you will be asked for an email address. If you choose to provide your address, it will be stored separate from your answers. Your email address will be used only to contact you at the end of the study to inform you of whether you were a winner in the drawing. Your email address will be stored in a secure database and will be deleted following completion of the study.
If you have any questions, you may contact Linda LeBlanc (269-387-4920), Jonathan Baker (269-387-4363), the Human Subjects Institutional Review Board (269-387-8293) or the vice president for research (269-387-8298).

This study was approved by the Human Subjects Institutional Review Board on March 11th, 2008. Do not participate after March 11th, 2009.

Demographic Questionnaire

1. Age in years: __________
2. Sex: M   F
3. Years working in long-term care settings: __________
4. Years working at this facility: __________
5. Is your nursing home a (select one):
   a. General care nursing home
   b. Specialized care for dementia nursing home
   c. General care nursing home with a Special Care Unit
6. Job title: ____________________________
7. Highest level of completed education (select one):
   a. High school degree (or equivalent)
   b. Bachelor’s Degree (or trade school)
   c. Graduate Degree
8. What would you say is the mission/goal of your facility? (select all that apply)
   a. Rehabilitation and discharge home
   b. Management of medical needs
c. Increase quality of life (i.e., sense of well being, satisfaction with life, 
   sense of self worth, sense of self esteem)

d. Increase self-efficacy

e. Pain Management

f. End of life care

g. Increase engagement and activity

h. Other __________________________

9. Have you worked with older adults with dementia who engage in aggression?

   Circle one: Yes       No

10. Are you currently, or have you been in the past year, involved in the treatment 
    decision for a resident with dementia who engaged in aggression? Select one:

    Yes       No

11. Please indicate how long it has been since you have been involved in the 
    treatment decision for a resident with dementia who engaged in aggression

    a. Less than 2 years

    b. 3 to 5 years

    c. 6 or more years

12. Please indicate how you take part in treatment decisions (select all that apply):

    a. I am part of a treatment team

    b. I make referrals to treatment teams

    c. I contact the patient's physicians with information about the patient's problem behavior

13. Please select any treatments you have used or recommended for use in your 
    facility in the past year. Select all that apply:

    a. Medical treatments (e.g., Seroquel, Ativan, Risperdol, Haldol)
b. Sensory treatments (e.g., music therapy/stimulation reduction, light therapy)

c. Behavioral treatments (positive reinforcement for alternative behaviors, time out, communication training)

*Transition*

Next you will watch a video of Margery. Be sure to turn up the volume on your computer so you can hear the audio. After watching the video, you will be presented with the description of three treatments which have been designed to address Margery's aggression. After hearing each description, you will be asked to evaluate that treatment.
Appendix C

The Adapted TEI-SF
1. I find this treatment to be an acceptable way of dealing with the woman’s problem behavior

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2. I would be willing to use this procedure if I had to change an older adult’s problem behavior

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3. I believe that it would be acceptable to use this treatment without older adult’s consent

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4. I like the procedures used in this treatment

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5. I believe this treatment is likely to be effective

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<td>Disagree</td>
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6. I believe the woman will experience discomfort during the treatment

1 2 3 4 5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

7. I believe this treatment is likely to result in permanent improvement

1 2 3 4 5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves

1 2 3 4 5
Strongly Disagree Neutral Agree Strongly
Disagree Agree

9. Overall, I have a positive reaction to this treatment

1 2 3 4 5
Strongly Disagree Neutral Agree Strongly
Disagree Agree
Appendix D

Vignette Descriptions
Video Vignette Voiceover

Margery is a 76 year-old woman who has lived in our nursing home for about six months. When she first arrived, she was pleasant and polite. Although her first month with us went well, things steadily became worse. A few weeks later, Margery was aggressive towards a staff person helping her get dressed. Since that time, her episodes of aggression have increased dramatically. This video shows Margery in several different situations over the past few weeks. Margery in a wheel chair due to diabetes and has mild to moderate Alzheimer's disease. She is typically confused about where she is and does not recognize her family members. Margery is often aggressive toward staff any time they ask her to do something, even when helping her with fun activities like arts and crafts. Margery also refuses self-care activities, including brushing her teeth, getting dressed, and bathing. As a result, staff have stopped asking Margery to help with care activities. In most situations, a one to three staff team is needed to get such care tasks done with Margery. One staff does the care task while the others help manage the aggression.

Treatment Descriptions

*Communication Training and Scheduled Breaks Treatment Description.* A psychologist watched Margery for a few days. The psychologist ran some assessments and has decided that Margery's aggression is a way of communicating that she would like a staff to back off and leave her alone. The psychologist designed a treatment of communication training. The
psychologist taught Margery to hand staff a card that says “please step back” as a more appropriate way to get staff to leave her alone. From that point on, before each care task, staff will remind Margery to use her card if she wants a break. If, during any care task or activity, Margery hands staff the card, staff will step back from Margery for 10 seconds. After 10 seconds, they will resume the care task, away from Margery, just like the scheduled breaks. This type of treatment requires all staff to have about 1 hour of training to learn how to implement treatment. The treatment is used by all staff that interact with Margery. Although fairly new, single-subject research studies have shown this treatment to decrease aggression in older adults with dementia by as much as 80%, with little to no side effects; however, it typically takes several days to be effective, and the full effects can take a week or two to be seen. Effects will last as long as the intervention is implemented every day.

Circadian Therapy and Stimulation Reduction Treatment Description. An occupational therapist has observed Margery. Based on her assessments, she believes Margery is sundowning. She feels that Margery is also getting too much stimulation, which is causing her to become aggressive as well. To treat the effects of sun downing, Margery will sit in front of a 10,000 lux lamp each morning for one hour. This light simulates the amount of light that comes through the window on a sunny day. When staff come in to help Margery get dressed in the morning, they help her to the chair in her room, turn the lamp on and set a timer for one hour. This helps
regulate her circadian rhythm and helps with the sundowning. During the day, if Margery is aggressive, staff take her back to her room. Once in her room, they turn on a CD player with soft classical music. This is designed to help calm Margery and reduce the amount of stimulation that Margery receives. Staff receive 20 min of training on how to work the lamp and are shown how to start the CD player. This light therapy is run by the staff person assigned to Margery for that day and the sensory therapy is run throughout the day by any staff that see Margery get aggressive. In single subject and group research studies, these treatments have been shown to reduce aggression in older adults with dementia by 5-30%, with little to no side effects. Research indicates that the effects can be seen within one hour of listening to the music, but generally do not last more than a few hours.

*Medication Based Treatment Vignette Description.* Margery’s physician was called in to determine why Margery was being aggressive. She ran several medical tests. Results of the medical tests showed that Margery’s Alzheimer’s has progressed and her physician has concluded this progression has resulted in aggression due to irregular levels of dopamine, a neurochemical in the brain. She checked to make sure that Margery was not on any heart medication and that she was not allergic to any medications. She then prescribed 1 mg/day of Risperdol®. Risperdol works by regulating dopamine and serotonin. There are some side effects
to this treatment, including sleepiness, lethargy, extra pyramidal symptoms and edema. If these are seen, the medication is stopped and a new medication can be tried. Although a nurse administers the meds, staff need to constantly monitor several indicators to make sure that Margery is not experiencing any of the side effects of the medications. Staff must keep track of how long Margery sleeps, which they note in the daily charts. When helping her dress they check her legs for swelling. Staff also watch for signs of extra pyramidal symptoms, like odd mouth movements and slight tremors in her hands and neck. Staff receive 20 minutes of training on the signs to look for and what to do if they notice them. In research studies, this treatment has been shown to decrease aggression by 1-50%. This type of treatment has been shown to have an effect on aggression the first day of treatment and effectiveness increases over the course of the first week. The effects continue as long as the medication is given every day.
Appendix E

Treatment Selection Questions
Treatment Summary

Thank you for rating each of the three treatments. The next question is based on the treatments you just read about. Just to recap, the three treatments were

*Communication Treatment*, which involved

- Stepping away from Margery for 10 seconds if Margery hands staff the “break” card
- 1 hour of training
- Typically takes several days to be effective, and the full effects can take a week or two to be seen.
- Effects will last as long as the intervention is implemented every day.

*Light and Sensory Treatment*, which involved:

- Helping Margery to the chair in her room, turning the lamp on and setting a timer for one hour.
- Taking Margery back to her room if Margery is aggressive and turning on a CD player with soft classical music.
- 20 min of training on how to work the lamp and how to start the CD player.
- Typically effects can be seen within one hour of listening to the music, but generally do not last longer than a few hours.

*Medication Based Treatment*, which involved:
Nurse administered meds

Monitoring several indicators to make sure that Margery is not experiencing any of the side effects of the medications.

20 minutes of training on the signs to look for and what to do if they notice them.

Typically have an effect on aggression the first day of treatment, with the effect increasing over the course of a week, and the effects continue as long as the medication is given every day.

Treatment Selection Questions

1. If Margery was a resident in your nursing home, please select the course of action you would most likely recommend for others to implement with Margery: (select one)
   a. Medication Treatment
   b. Communication Treatment
   c. I would not recommend/implement any of these

2. If Margery was a resident in your nursing home, please select the course of action you would most likely recommend for others to implement with Margery: (select one)
   a. Communication Treatment
   b. Light and Sensory Treatment
   c. I would not recommend/implement any of these
3. If Margery was a resident in your nursing home, please select the course of action you would most likely recommend for others to implement with Margery: (select one)
   a. Referral to a facility better equipped to handle aggression
   b. Communication Treatment
   c. I would not recommend/implement any of these

4. If Margery was a resident in your nursing home, please select the course of action you would most likely recommend for others to implement with Margery: (select one)
   a. Light and Sensory Treatment
   b. Medication Treatment
   c. I would not recommend/implement any of these

5. If Margery was a resident in your nursing home, please select the course of action you would most likely recommend for others to implement with Margery: (select one)
   a. Medication Treatment
   b. Referral to a facility better equipped to handle aggression
   c. I would not recommend/implement any of these

6. If Margery was a resident in your nursing home, please select the course of action you would most likely recommend for others to implement with Margery: (select one)
   a. Light and Sensory Treatment
   b. Referral to a facility better equipped to handle aggression
c. I would not recommend/implement any of these
Appendix F

Treatment Use Questionnaire
1. Over the past six months, how many residents have you helped (e.g., by participating in a treatment decision or on a treatment team) to get treatment or to adjust treatment for aggression? (select one)
   a. 1-3
   b. 4-6
   c. 7-9
   d. 10 or more

2. What types of behavior were the residents engaging in (select all that apply)?
   a. Hitting
   b. Kicking
   c. Biting
   d. Swearing
   e. Pushing
   f. Spitting
   g. Yelling
   h. Other

3. Of those residents who engaged in aggression, did any receive a behavioral treatment?
   Yes  No
   IF YES, CONTINUE TO 4. IF NO, SKIP TO QUESTION 11

4. How many? (select one)
   a. 1-3
   b. 4-6
c. 7-9

d. 10 or more

5. What behavioral treatment was used?______________________________

6. Was it successful?
   Yes  No

IF NO, CONTINUE TO 7. IF YES, SKIP TO QUESTION 8

7. If it was not successful, was another form of behavioral treatment used prior to medication?
   Yes  No

8. Would you try a behavioral treatment again?
   Yes  No

9. Based on your experience, would you guess that the behavioral treatment was more or less costly for your nursing home than other interventions?
   More  Less

10. Earlier you indicated the number of residents who received a behavior treatment.

   How many did NOT receive a behavioral treatment?
   a. 1-3
   b. 4-6
   c. 7-9
   d. 10 or more

11. When a behavioral treatment wasn’t selected, please select any of the following that accurately indicate why such a treatment was not used (select all that apply)?
   a. I/we didn't know such a treatment existed
b. I brought it up but others involved in the treatment process decided against it

c. It was too much work/effort for staff

d. There were potential side effects that seemed harmful for the resident

e. It cost too much to train staff to implement

f. I have heard that such treatments are not effective for older adults with dementia

g. The family or guardian was not supportive

h. Other

12. Of those residents who did NOT receive a behavior treatment, did any receive a sensory-based treatment?

   a. Yes

   b. No

IF A, CONTINUE TO NUMBER 13. IF B, SKIP TO 16

13. What sensory-based treatments were typically used?

14. Were they successful?

   Yes      No

15. Based on your experience, would you guess that the sensory-based treatment was more or less costly for your nursing home than other interventions?

   More      Less
16. Of those residents who did NOT receive a behavior treatment, did any receive a medication?
   a. Yes
   b. No

IF A, CONTINUE TO NUMBER 17. IF B, SKIP TO 20

17. What medication treatments were typically prescribed?

18. Were they successful?
   Yes    No

19. Based on your experience, would you guess that the medication treatment was more or less costly for your nursing home than other interventions?
   More    Less

20. Of those residents who did NOT receive a behavior treatment, did any receive a referral?
   a. Yes
   b. No

IF A, CONTINUE TO NUMBER 21. IF B, SKIP TO 22

21. Based on your experience, would you guess that the referral was more or less costly for your nursing home than other intervention?
   More    Less

Thank you for completing this survey. Your participation is greatly appreciated.
Once you submit your survey, your participation will be complete. You will then be re-directed to a new survey, which will contain a spot for you to submit your email address (you may also submit your name, but it is not required) should you choose to participate in the prize drawing.