

BEHAVIORAL ASSESSMENT OF PROBLEM
BEHAVIORS IN ELDERLY RESIDENTS OF
A PERSONAL CARE HOME

BY

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A Thesis
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in Partial Fulfillment of the Requirements
for the Degree of

MASTER OF ARTS

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**Behavioral Assessment of Problem Behaviors in Elderly Residents of a
Personal Care Home**

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Andrea S. Piotrowski

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of
Master of Arts**

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Abstract

Brief functional analysis procedures (Phases 1-3) were conducted to identify the controlling variables of different problem behaviors in 3 elderly residents in a personal care home. Hypotheses generated from results obtained in Phase 1 (i.e., structured interview and descriptive analysis) were compared with those from Phase 3 (i.e., brief functional analysis) to determine if they identified the same controlling variables. Data for descriptive and functional analyses were graphed and analyzed via visual inspection. Results indicated that Phase 1 identified more controlling variables than Phase 3. Hypotheses formed from descriptive and functional analyses were similar, but functional analysis narrowed the controlling variables for the problem behavior. A brief functional analysis appeared sufficient in determining controlling variables of the problem behaviors. The interview identified some, but not all controlling variables identified in descriptive and functional analyses.

Behavioral Assessment of Problem
Behaviors in Elderly Residents of a
Personal Care Home

Nelson and Hayes (1981) defined behavioral assessment as “the identification and measurement of meaningful response units and their controlling variables (both environmental and organismic) for the purposes of understanding and altering human behavior” (p. 3).

Haynes (1998) elaborated on the definition, outlining the following goals of behavioral assessment: “(a) to identify and measure precisely specified problem behaviors (as opposed to “diagnosis”); (b) to identify and measure specific client goals, strengths, and reinforcers (as part of a “constructional” approach to assessment); (c) to provide data for the design of interventions for individual clients; (d) to identify causal variables for behavior problems and goals (e.g., functional relationships involving social/environmental variables); (e) to evaluate the multivariate effects and mediators of intervention programs; and (f) to facilitate basic research in behavior analysis, learning, cognitive psychology, developmental psychology, and social psychology.”

The process of conducting a behavioral assessment can be conceptualized as a funnel (Hawkins, 1979). The wide mouth (top) end of the funnel consists of relatively inexpensive and easy to implement methods (e.g., interviews, questionnaires) of assessing the problem behavior in order to obtain a broad-base of information about potential, controlling variables. As the funnel narrows, the assessment techniques (e.g., functional analysis) become more costly and sophisticated, as specific controlling variables of the problem behavior are identified.

Behavioral assessment is an “umbrella” term that encompasses a continuum of directness of methods designed to measure behavior in relation to its controlling variables. Cone (1977) states that the indirect end of the continuum consists of “instruments and procedures relying primarily upon verbal surrogates of the ‘real’ behaviors about which the client is concerned and which have occurred at a distant point of time,” (e.g., interviews, self-reports, ratings-by-others). It is the easiest method to implement; however, replicability and accuracy often are compromised because many of the techniques measure cognitions that are only available to the client and therefore cannot be verified (Nelson & Hayes, 1979). Direct assessments incorporate “procedures involving observation of the actual behavior of interest, either in analog or natural environments at the time of its occurrence,” (e.g., informal observation, self-monitoring, descriptive analysis) (Cone, 1977). Furthermore, they are more valid than indirect assessments because they can be replicated and verified with greater accuracy via interobserver agreement where two or more observers record a particular behavior and then their results are compared (Nelson & Hayes, 1979).

Two mainstays of direct assessment are descriptive and functional analyses. Descriptive analysis “assesses behavior-environment interactions in the natural settings in which maladapted behavior occurs without manipulating variables suspected to influence the target behavior,” (Mace & Lalli, 1991). Direct observation of behavior occurs and when there is a high correlation between the behavior and certain environmental events (antecedents and consequences), it is hypothesized that these events are controlling the behavior (Lerman & Iwata, 1993). Descriptive analysis procedures vary in validity and reliability; however, they are relatively easy to implement. Another major advantage of descriptive analysis is that it exposes a large number of potential, controlling variables with enhanced generality when

compared to indirect assessment, since the assessment occurs in the natural environment (Sasso et al., 1992).

Although descriptive analysis is a popular assessment technique, it is not without its weaknesses. A major limitation of descriptive analysis is that data gathered are only correlational. Therefore, functional relationships are only suggestive, since directionality of control cannot be derived from correlations and confirmation of the controlling variables of behavior cannot be attained (Sasso et al., 1992; Lerman & Iwata, 1993). Furthermore, irrelevant variables may be irretrievably confounded with controlling variables thereby obscuring their relation to problem behavior (Iwata, Vollmer, & Zarcone, 1990). Finally, the controlling variables may not be readily apparent, if caregivers change the environment in order to minimize a particular problem behavior (Lerman & Iwata, 1993). All of these limitations can be eliminated by the second type of direct assessment, functional analysis.

Functional analysis is the most reliable (Mace, 1994; Northup et al., 1991) and valid method (Lerman & Iwata, 1993) when compared with other assessment techniques. The term functional analysis has been used interchangeably with experimental analysis (Mace & Lalli, 1991; Lerman & Iwata, 1993), but for present purposes, the term “functional” analysis will be used throughout. This approach systematically manipulates and controls variables in order to uncover causal relations with behavior.

Functional analysis has many advantages as a method of identifying the controlling variables of behavior. Two of the most poignant advantages are: (a) its objectivity and quantitative precision (Iwata, Vollmer, & Zarcone, 1990); and (b) its demonstration of controlling relationships between variables (Sasso et al., 1992; Lerman & Iwata, 1993; Mace, 1994; Carr, 1994). However, functional analysis is not without limitations. First, functional

analyses can be complicated, time consuming, and burdensome (Sasso et al., 1992; Lerman & Iwata, 1993). For applied purposes, functional analyses usually have been conducted in 40 to 60 sessions over an extended period of time. This cost weakness, however, has been overcome where a brief functional analysis (e.g., 90-min outpatient assessment) has been shown to be a feasible assessment procedure for severe problem behaviors (Northup et al., 1991). More specifically, in the Northup et al. study, a functional analysis was conducted over a series of 10-minute or less analogue conditions during a 1-day outpatient evaluation. Second, as Lerman & Iwata (1993) indicate, it may not be possible to manipulate variables associated with problem behavior directly for ethical reasons (e.g., withholding food in an experiment focusing on feeding problems). Third, although functional analysis is capable of identifying controlling variables in an experimental setting, the same conditions may not occur in the natural environment (Sasso et al., 1992). This weakness may not be a problem, however, if the controlling conditions in the experiment can be introduced into the natural environment. Despite these limitations, functional analysis is the hallmark technique of behavioral assessment.

Cone (1997) outlined three stages of the functional analysis procedure: (a) information gathering; (b) interpretation or hypothesis formulation; and (c) verification or hypothesis testing. Functional assessment is the term used to encapsulate the first two phases, whereas the term functional analysis is reserved for the third phase. In the first phase, it is important to define clearly the behavior of interest. Once the behavior is defined, a method of measuring the behavior must be chosen. It is critical that the method precisely measure the target behavior. The information gathering phase can use one or more of the following methods for collecting data: indirect assessment (e.g., interview, self-report, ratings-by-others) and direct

assessment (e.g., informal observation, descriptive analysis). The second or interpretive phase focuses on analyzing the data gathered in Phase 1 and on forming hypotheses that identify the potential, controlling variables of the behavior. Finally, the verification phase (i.e., functional analysis) systematically tests the hypotheses formulated in the previous phase. Experimental manipulations of antecedents and consequences are executed to determine the likely controlling variables of the studied behavior. The major questions that need to be addressed in this phase are: (a) what to manipulate; (b) how to manipulate; and (c) what criteria to use to decide whether control over behavior has been achieved.

Recent behavioral research has raised the issue of whether Phase 3 of the functional analysis procedure is necessary in terms of identifying controlling variables of a problem behavior or would Phase 1 (i.e., information gathering) or descriptive analysis suffice? Assessment must be reliable, valid, and cost-effective (Yates, 1985); so Phase 1 versus Phase 3 assessment results must be judged according to these criteria.

Several studies have compared the effectiveness of descriptive versus functional analysis in areas such as bizarre speech (Mace & Lalli, 1991), aberrant behavior (Sasso et al., 1992), and self-injurious behavior (SIB) (Lerman & Iwata, 1993). Overall, these researchers concluded that functional analysis is necessary to validate the results obtained in the descriptive analysis (see Appendix A for a more complete review). To illustrate, Lerman and Iwata (1993) undertook independent descriptive and functional analyses of self-injurious behavior (SIB) to determine if both methods identified the same controlling variables. The participants were six adults with profound mental retardation, who exhibited varying forms of SIB, including head banging, head and body hitting, hand biting, and hand mouthing. Responses by staff (e.g., instruction delivery, attention delivery, instruction removal) and

responses other than SIB by participants (e.g., aggression, disruption, compliance) also were recorded.

The results indicated that the descriptive analysis identified more potentially relevant events (i.e., social-positive reinforcement, social-negative reinforcement, automatic reinforcement) for each individual participant than did functional analysis because of the uncontrolled nature of the assessment. The authors indicate that descriptive analysis may not be sufficient for identifying actual controlling variables for SIB. To wit, in the functional analysis, each participant's SIB became quickly associated with particular variables, thus, indicating the contingencies responsible for the behavior, which were not always the same for each participant. For four participants, social-negative reinforcement (demand) was highly associated with SIB, for one participant, social-positive reinforcement (attention) was associated with SIB, and for one participant, automatic reinforcement (alone) was associated with SIB. By determining specific controlling variables in individual participants, individualized treatment programs could be designed to reduce SIB.

Lerman and Iwata (1993) presented a persuasive case that functional analysis is superior to descriptive analysis when identifying controlling variables of SIB; however, the study is not without limitations. First, staff members did not conduct the training programs consistently or respond consistently to participants' SIB behavior, and second, participants' activity schedules changed often. Each of these elements may have contributed to inaccurate results in the descriptive analysis. However, functional analysis clarifies any inconsistencies by systematically manipulating each of the potential, controlling variables.

In my research, behavioral assessment was conducted according to Cone's (1997) three phases of the functional analysis procedure. The intent of these procedures was to determine

whether Phase 1 and Phase 3 identified the same controlling variables for a target behavior. There appears to be no published research contrasting hypotheses generated solely from the information gathering phase of behavioral assessment (e.g., descriptive analysis) with hypotheses which benefit from additional data collected during the verification phase (i.e., functional analysis) in the area of gerontology (Neef & Iwata, 1994). Thus, my research was original in comparing assessment conclusions after Phase 1 with those after Phase 3 in determining the controlling variables for different problem behaviors in elderly persons.

A second, related goal of the research was to determine whether a brief functional analysis was sufficient in determining controlling variables of different problem behaviors in geriatric individuals. If a brief functional analysis were successful, then cost-effectiveness (Yates, 1985) should be enhanced relative to longer, extended functional analyses which are typical. A third, subsidiary goal of the research was to determine whether the Phase 1 structured interview (O'Neill et al., 1997) identified the same controlling variables for the problem behavior as descriptive and functional analyses. If the interview alone provided enough information to identify controlling variables for problem behavior, cost-effectiveness would be further enhanced.

Method

Participants and Setting

Three women living in a seniors' personal care home in Winnipeg, Canada, participated in my research. Each of these residents had displayed a different problem behavior, not related to a medical condition (e.g., to Parkinson's disease, dementia) for at least two years. Caregivers (i.e., head nurses, social workers or nurses' aides) were asked to identify residents eligible to participate in the research. Any caregivers who were able to identify

potential participants were approached individually, informed about the study, and asked for their participation and informed consent (see Appendix B for caregiver information sheet and caregiver consent form). Similarly, residents identified as potential participants and their family members also were approached, informed, and asked for consent (see Appendix B for resident information sheet, resident consent form, family information sheet and family consent form). According to convenience, interviews were conducted in an office, dining/family room, and conference room with caregivers of Mrs. Jenkins, Mrs. Lester, and Mrs. Simpson, respectively (not their real names).

Mrs. Jenkins was a 97-year-old female who was referred by staff for evaluation of aggressive behavior during morning care (~7:55-8:05 a.m.). Her behavior consisted of yelling, swearing and occasionally hitting or kicking caregivers. These behaviors were reported to have occurred almost every day since admission to the nursing home 56 months ago. Mrs. Jenkins was almost blind due to macular degeneration, but presented no other medical conditions that might contribute to her aggression. Observation of the behavior occurred in the resident's room.

Mrs. Lester was an 84-year old female who exhibited calling-out behavior. This behavior occurred mostly during periods of low activity (3:15-5:00 p.m.; 5:40-7:45 p.m.). It was characterized by relatively continuous and inappropriate calling out for a nurse (e.g., "Nurse, come help me."). When a nurse came over to her, Mrs. Lester wanted anything from her slippers off to the caregiver sitting with her. The extensive calling-out behavior had been occurring almost daily since admission 25 months ago. Behavioral observations occurred in the dining/family room.

Finally, Mrs. Simpson was an 81-year-old woman who was recruited because she overused the call bell when in bed. This behavior occurred most often after she was put to bed for the night (~9:45 p.m.) and often continued until she was taken out of bed in the morning (~10:30 a.m.). It was reported that her reasons for using the call bell varied from what may seem to be “appropriate ringing,” (e.g., wanting a bed pan) to “inappropriate ringing,” (e.g., wanting to see how fast the caregivers could get to her room). Caregivers stated that the majority of call bell use was inappropriate and that Mrs. Simpson gave a variety of excuses when the caregivers came to answer the bell (e.g., “I want a bed pan,” but she had one just half-an-hour ago). This behavior had been occurring since admission, 30 months ago. Data were collected at the nurses’ station in order to observe the call bell control panel and in the hallway outside her room to record interactions between Mrs. Simpson and the caregiver who responded to the call bell.

Apparatus and Materials

A structured interview (O’Neill, Horner, Albin, Sprague, Storey, & Newton, 1997) (Appendix C) was administered to caregivers for selection and assessment of participants. Mrs. Lester’s behavior was videotaped using a Sony Auto Handycam CCD-V4 video camera with Maxwell T-120 videotapes. Data sheets (Appendix D) were constructed for the purpose of recording antecedents, behaviors, and consequences for Mrs. Jenkins, Mrs. Lester, and Mrs. Simpson. Separate data sheets were used for each individual due to the differing natures of the problem behaviors.

Integrity of Assessment Procedures

Observer training and agreement. Two procedures were used for training observers/research assistants. Two research assistants were third year undergraduate

Psychology students, one was a second year Nursing student, and one assistant had graduated with an Honors' Degree in Psychology was working in the field of behavioral assessment as a research assistant. The first procedure provided observers with a brief training package consisting of relevant definitions (e.g., of antecedent, of consequence), examples of the definitions, and recording exercises. The observer was required to complete the exercises which consisted of identifying the problem behavior, and potential antecedents and consequences in scenarios portraying an elderly individual (Appendix E). Once the observer had mastered the exercises, then the second part of the training procedure was implemented. The second procedure consisted of practice sessions with videotapes of behaviors from previous behavioral assessment research (Koven & Holborn, 1998) focusing on dependent- and independent-supportive behavior in a personal care home. These videotapes were scored previously; thus the observer's answers were compared against the known values, as well as against one another's. An interobserver agreement of 90% for three consecutive sessions with the known values and with each other was required before beginning actual data collection.

Two methods were used to calculate interobserver agreement. A frequency ratio for Mrs. Jenkins' and Mrs. Simpson's behavior was calculated, since continuous recording was employed. Agreement was calculated by $ST/LT \times 100$, where ST is the smaller total (e.g., of antecedents, behavior, consequences) and LT is the larger total (e.g., of antecedents, behavior, consequences) recorded by observers. Agreement was calculated for each antecedent, behavior and consequence separately, as well for conjoint recordings of the antecedent and the problem behavior and of the problem behavior and the consequence.

In the case of Mrs. Lester, observers independently viewed videotapes and recorded the occurrence of the problem behavior, antecedents, and consequences, using partial-interval

recording. Interobserver agreement was measured by a point to point correspondence for each antecedent, behavior and consequence. In addition, point to point correspondences between conjoint recordings of the antecedent and the problem behavior and between the problem behavior and the consequence also were scored. The percentage of agreement between observers was obtained by dividing the number of agreements by the total number of agreements and disagreements and multiplying by 100.

Treatment integrity measures the degree to which an independent variable is implemented as it was technologically described (Kazdin, 1982). Although treatment integrity references treatment conditions, the integrity of behavioral assessment (i.e., variables being measured in Phase 1) and the integrity of conditions manipulated in the functional analysis also must be assessed and ensured. When data collection for Phase 1 was completed, the experimenter and an expert in the field of behavioral assessment (i.e., PhD, minimum of 20 years experience in behavioral assessment) independently chose variables associated with the problem behavior from the interviews and from the graphs (i.e., descriptive analysis). After procedures were established for Phase 3, an independent observer either viewed the videotapes or live implementation of the procedures to determine if they were being carried out as planned. The measures included correct implementation of appropriate antecedents, consequences, and other key components by a caregiver. Treatment integrity is typically calculated by using the formula $(TA \times 100)/TT$, where TA is the number of experimenter behaviors that correspond with the assessment or treatment procedure, and TT indicates the total number of behaviors that the experimenter could have emitted in accordance with protocol (Billingsley, White, & Munson, 1980). Treatment integrity in the functional analysis

was calculated by dividing the number of 10-s intervals with correct implementation of conditions by the total number of 10-s intervals per condition and multiplying by 100.

Procedure

The investigation encompassed three phases: information gathering; interpretation; and verification.

Phase 1. Information Gathering.

Indirect assessments. A structured interview served as one form of indirect assessment of a resident's problem behavior. This interview was administered to Mrs. Jenkins' head nurse, three caregivers and a head nurse of Mrs. Lester (i.e., evening staff), and two of Mrs. Simpson's caregivers. The interview took from 40 to 60 minutes to complete and served the following purposes: (a) describe the problem behavior(s); (b) identify physical and environmental factors predictive of the problem behavior(s); and (c) identify potential functions of the behavior(s) in terms of maintaining antecedents and consequences (O'Neill et al., 1997).

A very brief informal interview also was conducted with family members and residents regarding the target behavior. Questions focused on potential antecedents and consequences of the problem behavior. If any new variables were uncovered in these interviews, they were noted and were evaluated later to determine whether they should be manipulated in the functional analysis. No such variables were manipulated.

Procedure for direct assessment. Information obtained from the interview with caregivers was used to determine times when the target behavior was most frequent, so that informal observations could be conducted. The purpose of the informal observations was to determine the precise nature of the behavior and to verify times of its occurrence, so

descriptive analysis could be undertaken efficiently. The informal observations involved viewing the behavior in its natural environment and then noting any potential antecedents and consequences of the problem behavior. Following the informal observations, descriptive analysis was implemented. O'Neill et al. (1997) suggest that descriptive data be collected for a minimum of 2 to 5 days or until a minimum of 10 to 15 occurrences of the behavior are recorded. In my research, the behavior was observed for at least three sessions or longer, if necessary, until effects of antecedents and consequences became apparent from visual inspection of graphed results.

Descriptive analysis of Mrs. Jenkins' aggressive behavior consisted of continuous recording of antecedents, behavior, and consequences during morning care until certain antecedents and consequences appeared to be controlling her aggressive behavior. Six sessions were observed by a primary observer (i.e., experimenter) with 100% of the sessions checked by an independent secondary observer (i.e., research assistant). The sessions totaled 60-minutes, with three of the sessions delivered primarily in English by one caregiver and the remaining three sessions spoken mostly in Mrs. Jenkins' native tongue by two separate caregivers.

In the descriptive analysis for Mrs. Jenkins, interobserver agreement of antecedents, behavior and consequences ranged from 88% to 100% (\underline{M} =94.2%), 70% to 100% (\underline{M} =95%), and 67% to 100% (\underline{M} =85%), respectively in descriptive analysis. Interobserver agreement between the antecedent and the problem behavior ranged from 70% to 100% (\underline{M} =91.2%) and agreement between the problem behavior and the consequence ranged from 67% to 100% (\underline{M} =82%). The session that had only 67% agreement consisted of only three instances of aggression and one consequence was missed by one observer.

Mrs. Lester's calling-out behavior was videotaped in 9 sessions over 4 days, for a total of 94 minutes. The videotapes were later viewed and scored by a primary observer (i.e., research assistant) and checked by a secondary observer (i.e., research assistant) for 100% of the sessions. A 10-s partial interval recording procedure was used.

Interobserver agreement was calculated in all sessions of descriptive analysis and ranged from 93% to 100% ($\underline{M} = 99.1\%$), 93% to 100% ($\underline{M}=99.1\%$), and 90% to 100% ($\underline{M}=98.8\%$) for antecedents, behavior, and consequences, respectively. Agreement for conjoint recordings between the antecedent and the problem behavior ranged from 93% to 100% ($\underline{M}=99.1\%$) and for the conjoint recordings between the problem behavior and the consequence ranged from 90% to 100% ($\underline{M}=98.8\%$).

Mrs. Simpson's behavior was first monitored by caregivers who recorded each instance that she used the call bell by marking on data sheets the date, time, reason and what was done when the behavior occurred. After determining the peak period of the target behavior from these data, descriptive analysis was implemented. Mrs. Simpson's behavior was monitored by a primary observer (i.e., experimenter) and checked by a secondary observer (i.e., research assistant) for 50% of the sessions which occurred over 3 days for a total of 4 hours. Since the call bell ringing did not occur at a relatively high rate when compared to other behaviors, a longer observation time was required to obtain sufficient data to graph and visually analyze. Observers recorded the time she rang the call bell, the time caregivers responded to the call, the reason she called, how caregivers responded and the time caregivers left the room. Any other potential antecedents and consequences were noted, as was whether Mrs. Simpson rang the call bell and then turned it off herself.

In the descriptive analysis for Mrs. Simpson, there was 100% agreement on antecedents, behavior, and consequences, and 100% agreement on conjoint recordings of the antecedent and the problem behavior and of the problem behavior and the consequence. Agreement was high because of the discrete nature and relatively low frequency of call bell ringing.

Phase 2. Interpretation.

Selection of functional analysis conditions. After completing the Information Gathering Phase, the data were graphed for analysis via visual inspection (Kazdin, 1982, p. 232) and up to five variables were chosen for manipulation. A maximum of five variables was chosen, since a brief functional analysis was to be implemented. A maximum of four variables chosen “appeared” most effective in producing the problem behavior and one variable “appeared” least effective in producing the problem behavior, thus, serving as a control variable. The variables were chosen independently by the experimenter and an expert in the field of behavioral assessment (i.e., PhD, minimum of 20 years experience in behavioral assessment) who identified the environmental events from the graphs and interviews. There was 100% agreement on controlling variables that were most and least associated with the problem behavior. Hypotheses were formed regarding the controlling variables of the problem behavior(s) in each participant.

Phase 3. Verification (Functional Analysis).

General procedure for functional analysis. The selected variables identified in Phase 2 were systematically manipulated in an alternating conditions design (Kazdin, 1982, p. 178). Interobserver agreement and treatment integrity checks were calculated in every session to obtain maximum accuracy, since the functional analysis was brief.

In functional analysis for Mrs. Jenkins, interobserver agreement ranged from 80% to 100% ($M=91.4\%$), 75% to 100% ($M=85.6\%$), and 80% to 100% ($M=91.4\%$) for antecedents, behavior, and consequences, respectively. Agreement for conjoint recordings ranged from 75% to 100% ($M=85.6\%$) for the antecedent and the problem behavior, and 75% to 100% ($M=85.6\%$) for the problem behavior and the consequence. Treatment integrity for Mrs. Jenkins was 100% in the English-No Physical Care and English-Physical Care conditions. In the Native Tongue-Physical Care condition, treatment integrity was 98.3%, and in the Native Tongue-No Physical Care condition, treatment integrity was 97.5%. A failure was defined as speaking a sentence in the inappropriate language, or providing Physical Care in a No Physical Care condition.

Interobserver agreement for Mrs. Lester in the functional analysis for the problem behavior ranged from 93% to 100% ($M=98.8\%$). Treatment integrity in the functional analysis for Mrs. Lester was 100% in Audible Conversation-Ignore, One-on-One, Alone-Ignore, and Alone-Attention by Caregiver. Treatment integrity for Inaudible Conversation-Ignore was 97.8%. The failure occurred because the caregiver walked away from the resident who was supposed to be receiving attention. She was quickly prompted to return and to complete the session.

Interobserver agreement for Mrs. Simpson in the functional analysis was 100%. Treatment integrity was 100% in each condition as well.

Results

The results are presented for Mrs. Jenkins, Mrs. Lester, and Mrs. Simpson, in sequence. For each participant, Phase 1 data (i.e., interview, descriptive analysis) are reported first, followed by the results obtained from the functional analysis.

Mrs. Jenkins

The interview with caregivers revealed that Mrs. Jenkins' aggressive behavior was most likely to occur during morning care, particularly if the caregivers were persistent in delivering care, approached her too quickly, grabbed her arm or didn't tell her what they wanted to do. All of these antecedents could startle her, since she is visually impaired. The interview also reported that the behavior occurred least often when caregivers approached Mrs. Jenkins in a quiet, calm manner. Figure 1 summarizes the results from descriptive analysis. As can be seen, antecedents of speaking English (i.e., by the caregiver) as opposed to the native tongue of the resident, physical contact, and caregiver were most correlated with aggressive behavior. The antecedent least associated with the problem behavior was no physical contact, followed by the caregiver asking questions/talking to the resident. The consequence of ignoring the aggressive behavior also was observed, but it was not highly correlated with the behavior.

Following Phase 1, hypotheses (i.e., Phase 2) were formed based on the results obtained in the previous phase. It was hypothesized that when the caregiver spoke English instead of the native tongue of the resident, aggressive behavior would increase. The use of English by the caregiver affected comprehension, since sometimes Mrs. Jenkins would state that she did not understand what was being said. Thus, the less Mrs. Jenkins understood, the more the aggressive behavior increased. In addition, communication in Mrs. Jenkins' native tongue seemed to be more reinforcing to her (primarily, more verbal conditional reinforcers were delivered). In both the interview and descriptive analysis, physical care by the caregiver was identified as an aversive event for the resident. Therefore, it also was hypothesized that

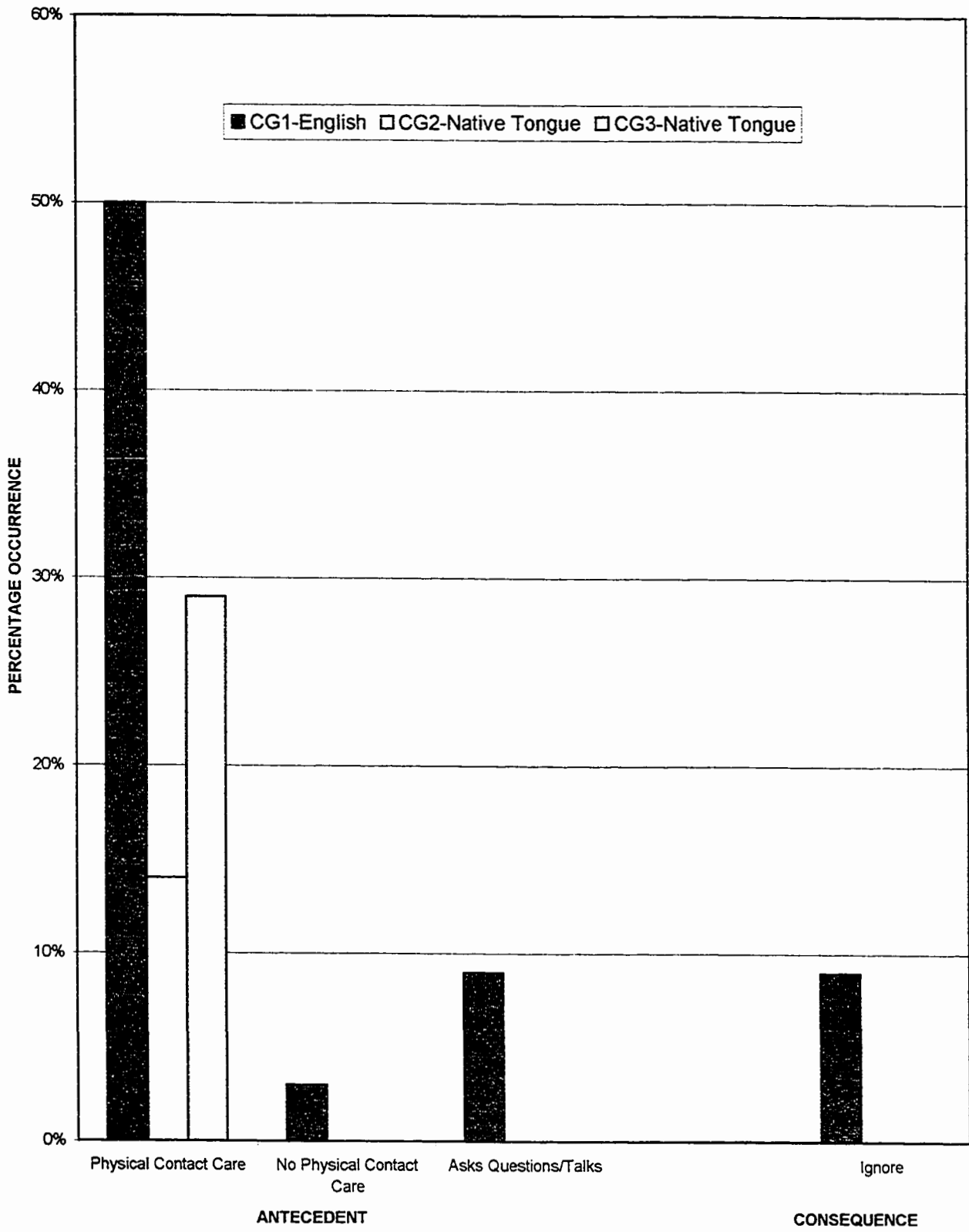


Figure 1. Antecedents and consequences associated with Mrs. Jenkins' aggressive behavior during morning care (%) (Descriptive Analysis).

physical care would increase the likelihood of aggressive behavior. The behavior would occur in order to terminate the undesirable event (i.e., physical care).

From these data, the following four conditions were created for functional analysis: Native Tongue-Physical Care; Native Tongue-No Physical Care; English-Physical Care; and English-No Physical Care. Physical Care was defined as providing morning care (e.g., dressing, combing hair, washing face), whereas No Physical Care was defined as having no physical contact with Mrs. Jenkins. Each condition specified the language which was to be spoken for the entire session. Each session lasted 20 min, since all four conditions were implemented for 5 min each; data were collected over 4 days. One caregiver was used for every session since descriptive analysis did not eliminate the possibility that certain caregivers might increase the amount of aggressive behavior exhibited by Mrs. Jenkins. It was hypothesized that the English-Physical Care condition would cause the greatest amount of aggressive behavior, and that the Native Tongue-No Physical Care (control) would cause the least amount of aggressive behavior.

Figure 2 shows data from functional analysis which illustrates the number of aggressive behaviors occurring over 5 min in each condition. The condition producing the most aggressive behavior was indeed English-Physical Care ($\underline{M}=4.7$), followed by Native Tongue-Physical Care ($\underline{M}=2.0$). The conditions causing the least amount of the problem behavior were English-No Physical Care ($\underline{M}=0$) and Native Tongue-No Physical Care ($\underline{M}=0.33$), respectively. The overall effect of the variables are as follows: English ($\underline{M}=2.5$); Native Tongue ($\underline{M}=1.0$); Physical Care ($\underline{M}=3.33$); and No Physical Care ($\underline{M}=0.17$). Thus, the English and Physical Care conditions resulted in the most aggressive behavior.

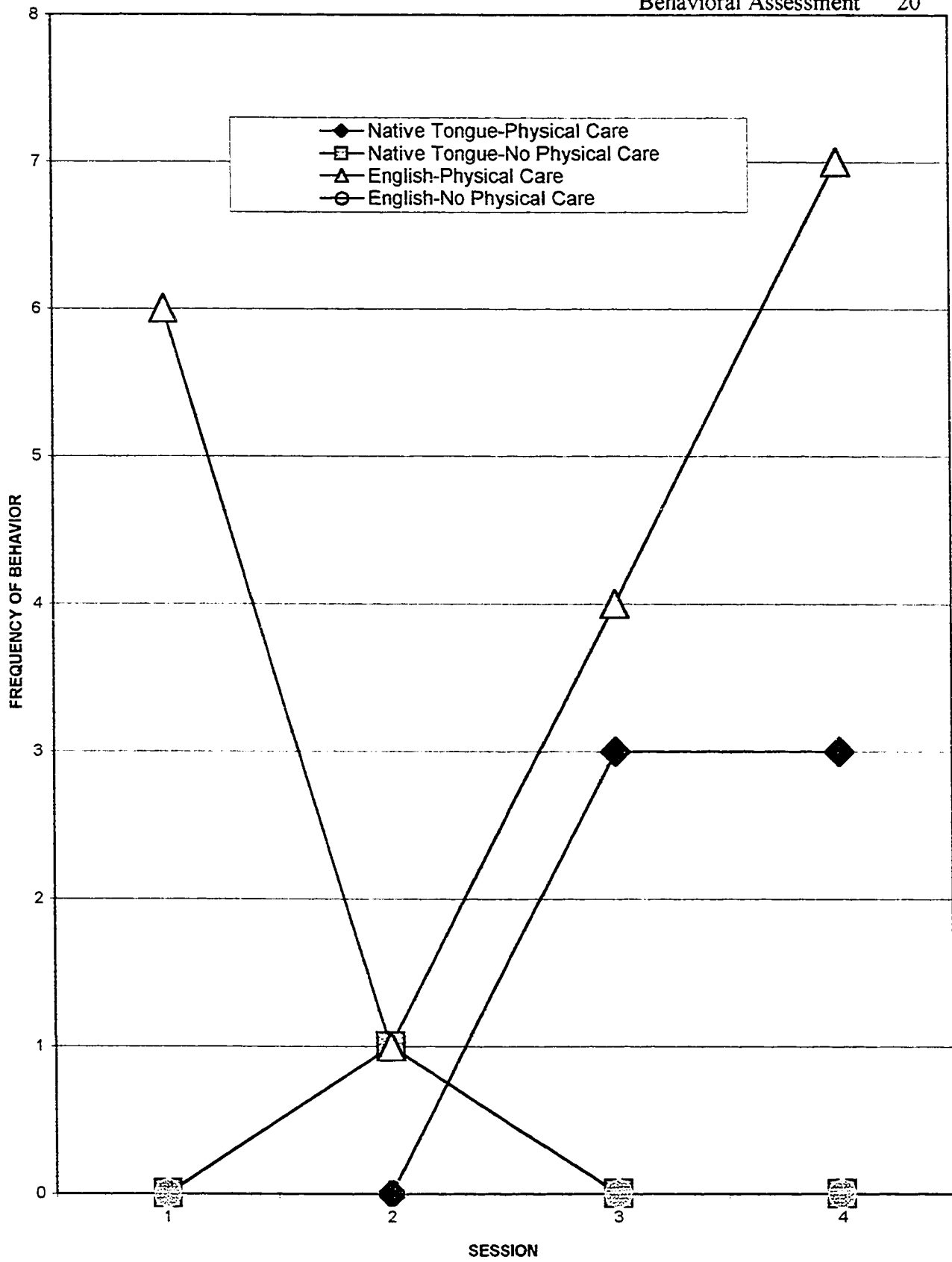


Figure 2. Relative frequency of Mrs. Jenkins' aggressive behavior in various conditions (5 min each) (Functional Analysis).

The results from descriptive and functional analyses identified the same controlling variables of aggressive behavior (i.e., English vs. Native Tongue and Physical Care vs. No Physical Care). However, descriptive analysis also identified caregiver as a potential, controlling variable. Furthermore, although the structured interview resulted in Physical Care being identified as a controlling variable for the target behavior, language spoken by the caregiver was not identified as such from the information given in the interview.

Mrs. Lester

Caregivers indicated that Mrs. Lester engaged in calling-out for the nurse for social attention. Other variables associated with the problem behavior included a nurse giving attention to another resident or taking away a resident that was sitting next to and previously interacting Mrs. Lester (i.e., “jealousy theory”) and seeing a caregiver (dressed in a uniform). When a nurse gave Mrs. Lester social attention, the calling-out behavior appeared to cease. Figure 3 indicates that the antecedent most associated with calling-out behavior was when Mrs. Lester was alone (i.e., not interacting with any residents or caregivers, even if they were in close proximity to her). The consequence most highly correlated with calling-out was when Mrs. Lester was being ignored by the caregivers. The consequences least associated with calling-out included one-on-one interaction with a caregiver or resident, followed by a caregiver asking from a distance what Mrs. Lester wanted, another resident mimicking/responding negatively to her behavior (e.g., “Shut up!”) and a positive resident response (e.g., “What’s wrong?”).

It was hypothesized that calling-out would occur the most when Mrs. Lester was alone and ignored by caregivers. She would engage in the calling-out behavior in order to receive social attention from the caregivers. It also was hypothesized that when a caregiver interacted

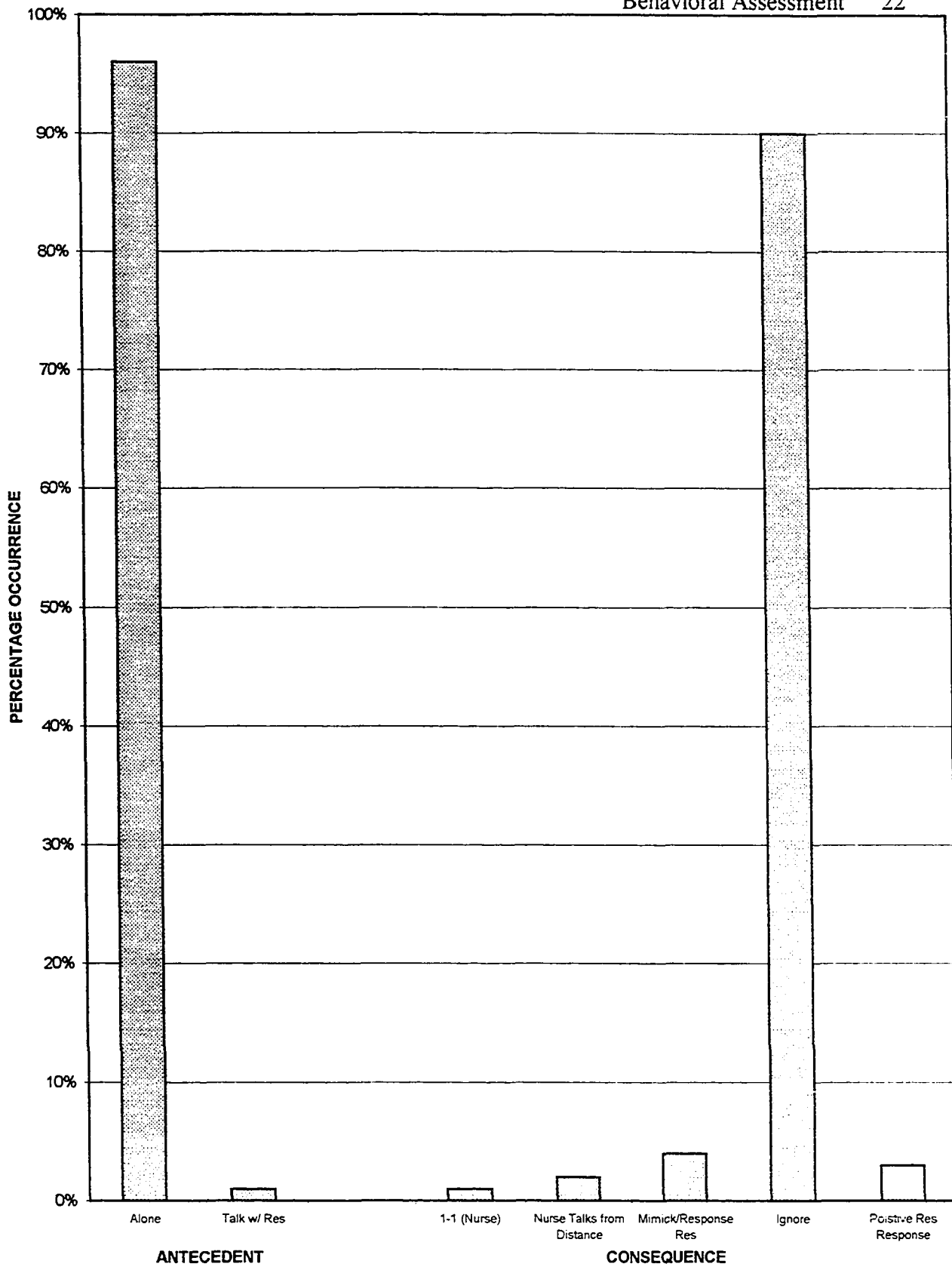


Figure 3. Antecedents and consequences associated with Mrs. Lester's calling-out behavior (%) (Descriptive Analysis).

with another resident in sight of Mrs. Lester, the calling-out behavior would increase in order to obtain social attention for herself (i.e., “jealousy theory”).

The following five conditions were created for functional analysis: Alone-Ignore; Alone-Attention by Caregiver; Audible Conversation-Ignore; Inaudible Conversation-Ignore; and One-on-One. The first condition is defined as above. Alone-Attention by Caregiver was defined as a caregiver going to Mrs. Lester for less than 1 min when she called out. Audible Conversation-Ignore was defined as a caregiver going to and interacting with a resident who is in close proximity to Mrs. Lester and ignoring her. In the Inaudible Conversation-Ignore condition, the caregiver would take away a resident who is/was interacting with Mrs. Lester and subsequently talk with this resident in full view of Mrs. Lester. Audible Conversation-Ignore differed from Inaudible Conversation-Ignore in that Mrs. Lester could hear the conversation between the resident and the caregiver in the former condition. These two conditions test out the “jealousy theory” obtained from the interviews. Finally, One-on-One consisted of a caregiver or another resident talking to Mrs. Lester. Each condition lasted 15 min and was implemented 3 times over a period of one week. It was hypothesized that the Alone-Ignore and Inaudible Conversation-Ignore conditions would produce the most calling-out behavior and the One-on-One (control) would cause the least.

Figure 4 shows the number of times Mrs. Lester called out in each condition of the functional analysis. The condition that produced the most calling-out behavior was indeed Alone-Ignore ($\bar{M}=47.7$), followed by Inaudible Conversation-Ignore ($\bar{M}=34.3$). The conditions causing the least amount of the problem behavior were One-on-One ($\bar{M}=0$) and Audible Conversation-Ignore ($\bar{M}=0$), followed by Alone-Attention by Caregiver ($\bar{M}=5.3$).

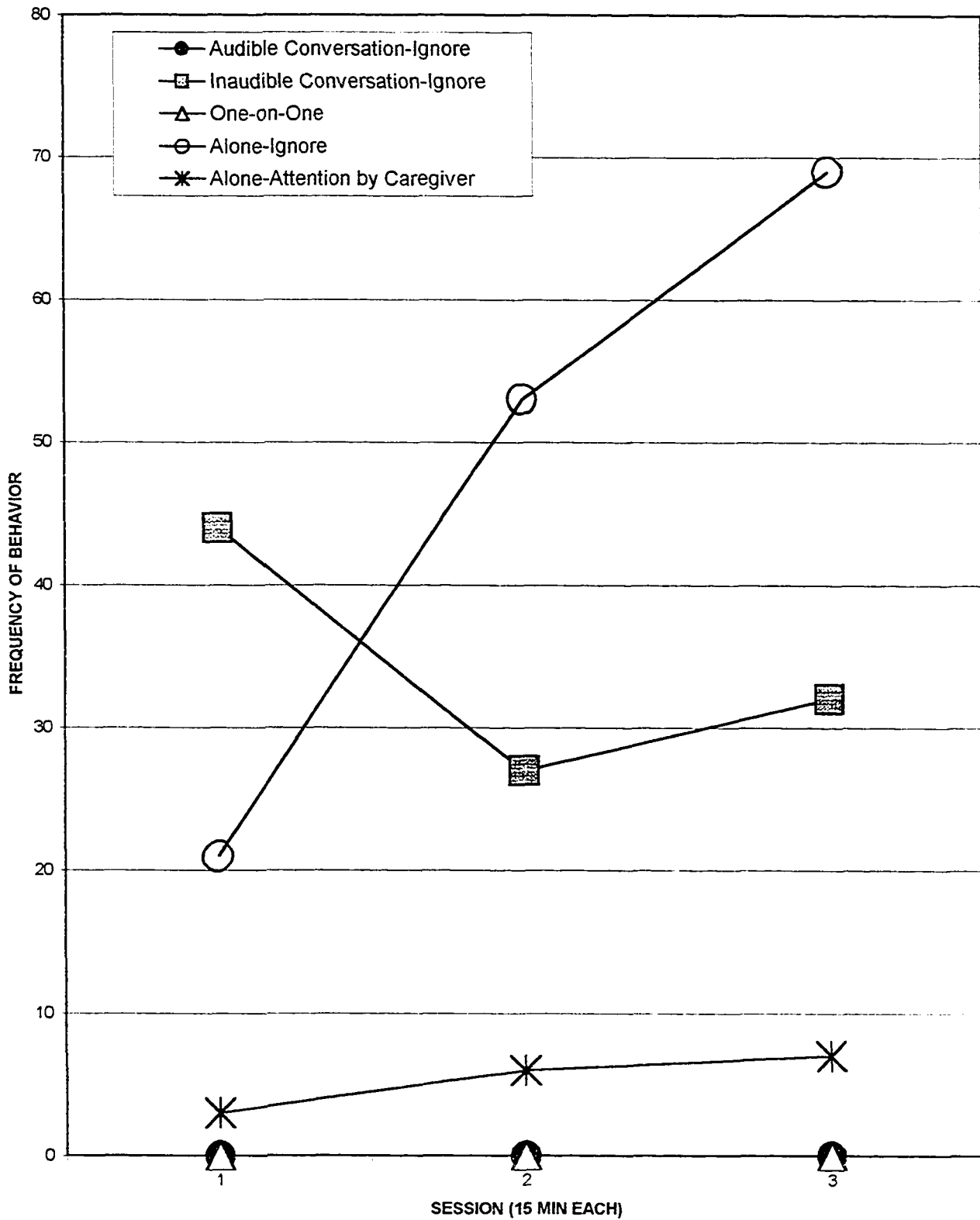


Figure 4. Relative frequency of Mrs. Lester's calling-out behavior in various conditions (15 min each) (Functional Analysis).

The results from Phase 1 (i.e., interview, descriptive analysis) and Phase 3 (i.e., functional analysis) both identified Alone-Ignore as a controlling variable of calling-out behavior. The results from the interview and functional analysis showed that attention given to another resident (i.e., “jealousy theory”) was highly correlated with the problem behavior. However, during functional analysis specific conditions were identified that caused the calling-out behavior to occur in this condition (i.e., Mrs. Lester can see the interaction, but not hear the conversation). This idea originated during the functional analysis when the occurrence of the problem behavior only happened when Mrs. Lester could not hear the conversation. When Mrs. Lester still was able to hear the conversation (i.e., Audible Conversation-Ignore), social reinforcement still may have been sufficient; thus the problem behavior was not emitted.

Mrs. Simpson

Caregivers indicated that Mrs. Simpson overused the call bell in order to obtain social attention. Figure 5 shows data obtained from descriptive analysis which indicates that overusing the call bell was correlated mainly with two consequences. The first consequence that was correlated with call bell ringing was the time it took caregivers to respond to the call bell. An immediate response (i.e., less than 30 s) was associated the most with overusing the call bell, followed by no response (i.e., Mrs. Simpson turned off the call bell herself) and then by a delayed response (i.e., 30 s or more). The second consequence that was correlated with overusing the call bell was the type of response given by the caregivers. A nice response was associated the most with the behavior, followed by a stern response and, lastly by a threat. A nice response was recorded when a caregiver interacted with Mrs. Simpson with a soft voice in a pleasant way (e.g., “What can I get for you?” “Good night.”). A stern response was defined as a caregiver speaking loudly and being direct with her statements (e.g., “Stop ringing that

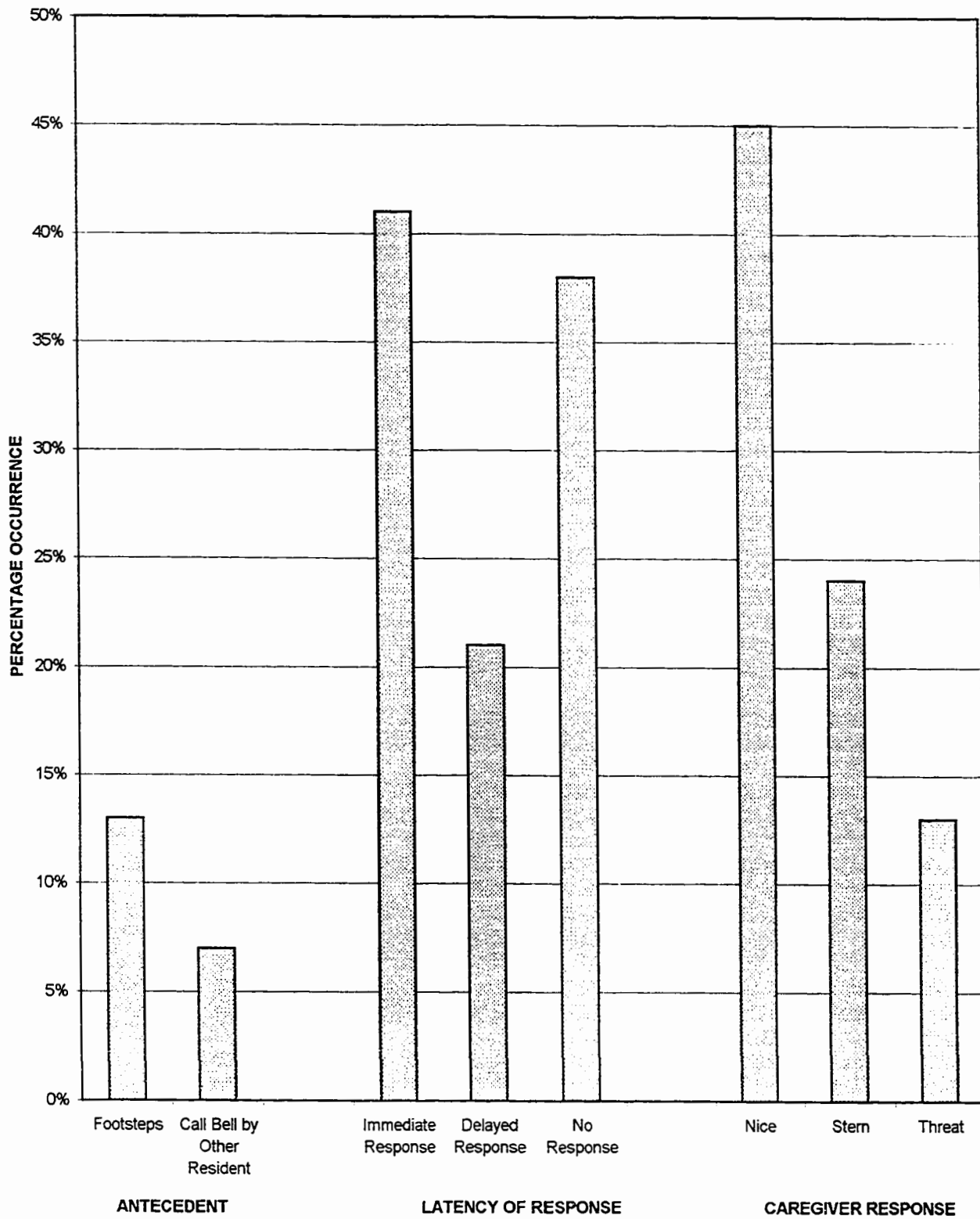


Figure 5. Antecedents and consequences associated with Mrs. Simpson's call bell use (%) (Descriptive Analysis).

bell, do you understand?”). Threat, referred to caregiver statements spoken in a loud voice that might result in consequences that seemed to be unpleasant for the resident (e.g., “I’m going to tell the nurse and then you’ll be in big trouble.”).

In Phase 2, it was hypothesized that call bell ringing would increase when the call was responded to in less than 30 s because Mrs. Simpson received immediate reinforcement (i.e., social attention) from a caregiver. A second controlling variable that would increase the likelihood of ringing the call bell was if the caregivers responded in a pleasant manner. This condition provides optimal social reinforcement for the resident.

The four conditions generated for the functional analysis were: Nice-Immediate; Minimal Attention-Delay; Minimal Attention-Immediate; and Nice-Delay. A nice response was defined as above, whereas minimal attention was defined as speaking and interacting as little as possible with Mrs. Simpson when she rang. Minimal attention was used in lieu of a stern response or threat because of the aversiveness of the verbal stimuli involved, and because substantial social attention was still provided to the resident, in the latter two categories. The Immediate condition was defined as responding to the call bell in less than 30 s, whereas the Delay condition required waiting a minimum of 2 min before responding to the call bell. The 2 min delay condition was approved by nurses, since such delays occurred often in the natural environment. Each session lasted one hour since the relative frequency of the behavior was low. Two conditions were implemented every night, when possible. It was hypothesized that the Nice-Immediate condition would produce the greatest amount of call bell ringing, whereas the Minimal Attention-Delay condition would produce the least (control). Each condition lasted 1 hour and was supposed to be implemented at least 3 times.

Figure 6 shows the results from the functional analysis of Mrs. Simpson's call bell ringing behavior. The data show that the Nice-Immediate condition ($\underline{M}=12$) produces the most amount of call bell ringing, followed by the Minimal Attention-Delay condition ($\underline{M}=9$). The Minimal Attention-Immediate condition ($\underline{M}=3$) produced the least amount of the problem behavior, followed by Nice-Delay ($\underline{M}=5$). Thus, provisionally it appears that the Nice-Immediate condition resulted in the most call bell use.

Limited results appear for two reasons. First, it was discovered that a caregiver informed Mrs. Simpson that someone was there to monitor her call bell behavior, so she should not ring. This instruction caused the behavior to decrease to zero or almost zero levels of occurrence when compared to the data gathered in the descriptive analysis, as well as data accumulated by caregivers before descriptive analysis began. Second, an unfamiliar caregiver who was temporarily assigned to the ward provided Mrs. Simpson with an extreme amount of social attention throughout the evening (as reported by the regular caregivers). There were no instances of call bell ringing for the entire session, since the unfamiliar caregiver requested that Mrs. Simpson kindly not ring the call bell because the caregiver was tired and wanted to go home.

Discussion

There were three main purposes to my research. The first purpose was to determine whether Phase 1 (i.e., structured interview and descriptive analysis) and Phase 3 (i.e., functional analysis) of the functional analysis procedure identified the same controlling variables of different problem behaviors in elderly residents of a personal care home. In the case of Mrs. Jenkins' aggressive behavior during morning care, the results obtained in Phase 1 identified more controlling variables than the results from Phase 3. This finding was replicated

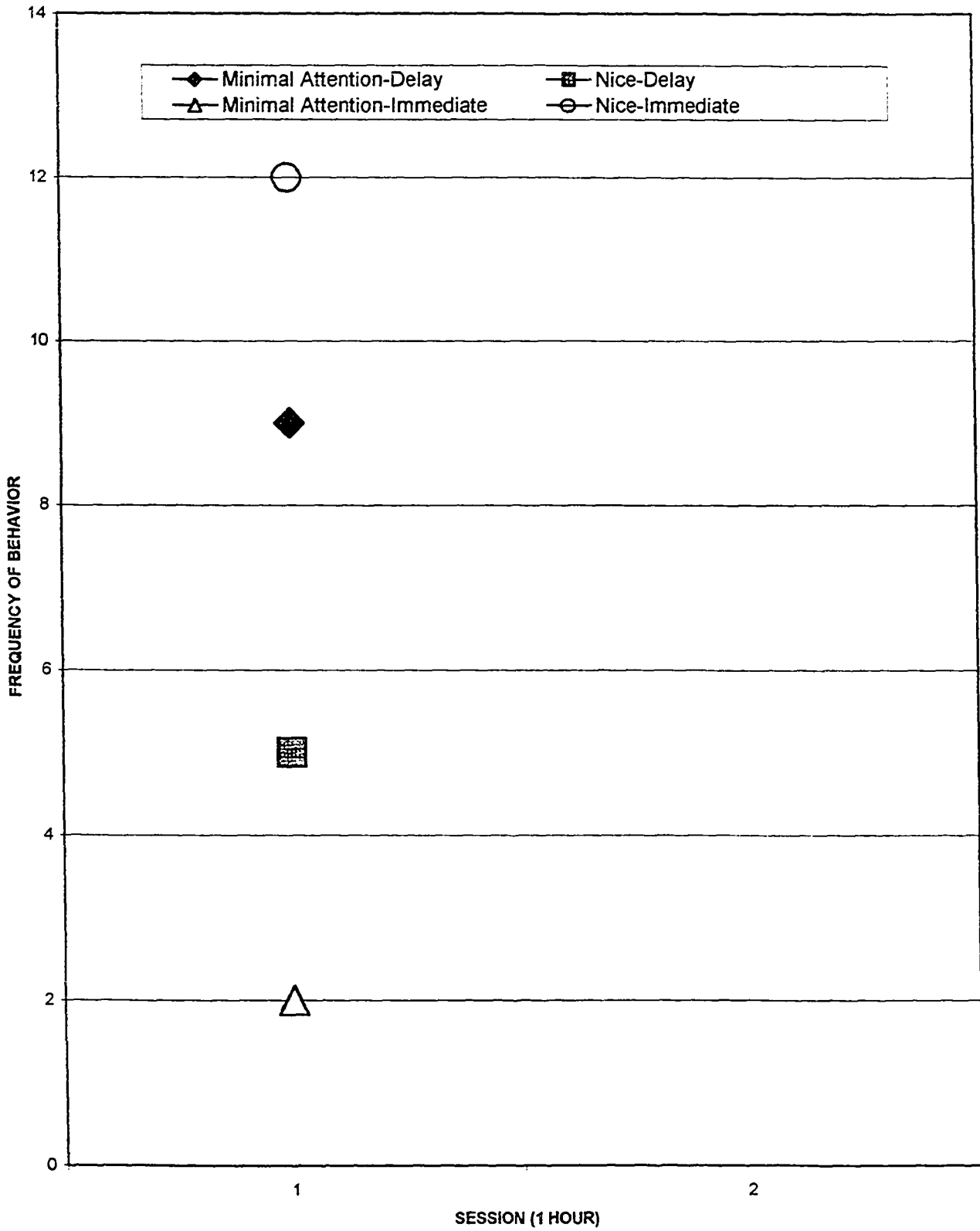


Figure 6. Relative frequency of Mrs. Simpson's call bell use in various conditions (1 hour each) (Functional Analysis).

with Mrs. Lester's calling-out behavior. Results from the descriptive analysis in Phase 1 showed relatively high correlations between several variables and the problem behavior, whereas the results obtained in Phase 3 narrowed the number of variables to those that actually controlled the problem behavior. The results from Phase 1 for Mrs. Simpson's call bell use identified several potential, controlling variables of her problem behavior. Unfortunately, insufficient data were collected in Phase 3 of Mrs. Simpson's call bell use, so functional analysis was not completed. The act of caregivers altering the environment in order to minimize a particular problem behavior was a potential complication discussed by Lerman and Iwata (1997) albeit for descriptive analysis.

Overall, descriptive analysis and the structured interview were valuable in suggesting possible controlling variables for the problem behavior; however functional analysis was necessary to limit and fine tune the precise nature of the actual controlling variables. This finding is consistent with that of Lerman and Iwata (1993) who discovered that results from the descriptive analysis identified more controlling variables than the results obtained in the functional analysis.

The second purpose of my research was to determine whether a brief functional analysis was sufficient in determining the controlling variables of different problem behaviors. The functional analysis phase for Mrs. Jenkins' was completed in 4 sessions totaling 80 min. This brief analysis appeared successful in identifying the controlling variables of her aggressive behavior. Similar success was demonstrated in the functional analysis for Mrs. Lester's calling-out behavior which was implemented in 15 min sessions per condition, totaling 225 min. The functional analysis for Mrs. Simpson's call bell use was to occur for a total of 12 hours. The reason the functional analysis was to take so long was that the behavior

occurred at a relatively low frequency, so more time was needed in order to collect sufficient data. Northup et al. (1991) stated that previous functional analytic research has typically been conducted for 40 to 60 sessions, over an extended period of time. Although an extended functional analysis may have manipulated additional potential, controlling variables identified in Phase 1, a brief functional analysis was successful in showing discrepancies between data obtained in Phase 1 and data from Phase 3. Thus, a brief functional analysis was sufficient in determining particular controlling variables of the problem behavior for Mrs. Jenkins and Mrs. Lester. If additional data were obtained in the functional analysis for Mrs. Simpson, the same conclusions were expected.

The third goal of my research was to determine whether the structured interview (O'Neill et al., 1997) identified the same controlling variables as descriptive and functional analyses, and whether the interview alone provided enough information to forfeit subsequent descriptive and functional analyses. With Mrs. Jenkins, the results of the interview identified more potential, controlling variables of her aggressive behavior than did results obtained from descriptive or functional analyses. One of the variables (i.e., Physical Care) was identified across all three methods of assessment as controlling the problem behavior. As in the case of Mrs. Jenkins, the results of the interview for Mrs. Lester identified more potential, controlling variables than did descriptive or functional analyses. The results from the interview did overlap with some of the variables identified in descriptive and functional analyses as controlling the problem behavior (i.e., being alone). In addition, the interview results identified variables (i.e., giving attention to another resident) that were not observed during the descriptive analysis, but were identified in functional analysis as controlling the behavior. Similarly, the results of the interview for Mrs. Simpson's call bell use identified more controlling variables than in

descriptive and the limited functional analyses. Hawkins (1979) has enunciated a "funnel" metaphor to describe the process of behavioral assessment wherein an initial broad-base of assessment information is successively winnowed to identify controlling variables of problem behavior. While it may be tempting from a cost-effectiveness perspective to isolate and to rely exclusively on certain phases of the assessment process (e.g., a structured interview or descriptive analysis), a lesson of my research and that of Lerman and Iwata (1993) and Mace and Lalli (1991) is that behavioral assessors do so at their peril.

Future research in behavioral assessment of problem behaviors in elderly residents of a personal care home should implement a treatment validity phase. Separate treatments should be designed based on results obtained from Phase 1 and those obtained from Phase 3. The results from the separate treatment packages then would be compared as to effectiveness.

With respect to assessment and treatment of elderly residents in institutional settings, a cautionary note is in order. Where problem behaviors are functional in gaining social attention in environments relatively barren in social reinforcement, the solution is not to simply use behavioral technology (e.g., extinction) to eliminate the behaviors. Rather, such environments should be restructured to provide more social contingencies (e.g., Gould, 1992) or alternatively more desirable responses should be trained which serve the same function (i.e., gaining social reinforcement). Until such treatments can be implemented, results of the present research provide strong, preliminary support for the potential of behavioral assessment in understanding and eventually ameliorating behavior problems of elderly individuals in institutional settings.

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Appendix A

Descriptive versus Functional Analysis

In addition to the research of Lerman and Iwata (1993), others have compared the results obtained from descriptive and functional analyses. To illustrate, Mace and Lalli (1991) used descriptive and functional analyses to identify maintaining variables of bizarre speech in a mentally retarded man, and subsequently developed interventions to reduce this problem behavior. The researchers recognized that descriptive analysis identified many variables that were not actually controlling the behavior as contrasted to functional analysis. Hence, if treatments were planned based on all variables identified by descriptive analysis, many treatments would not only have been unnecessary, but also less cost-effective. Furthermore, functional analysis overlapped in only some of the variables identified by descriptive analysis and therefore weeded out the unnecessary ones. The results identified contingencies associated with bizarre speech resulting in implementation of successful treatment programs to reduce the problem behavior.

Similarly, Sasso et al. (1992) compared descriptive and functional analysis in identifying controlling variables of aberrant behavior in two autistic children. In addition, the researchers wanted to determine if trained classroom teachers were capable of effectively conducting the analyses, as well as implementing a treatment program in order to reduce aberrant behavior. A benefit of using teachers is that it is a more cost-effective method and the procedures could be generalized across “therapists.” Sasso et al. obtained different results from those of Mace and Lalli (1991). With respect to aberrant behavior, they found that descriptive and functional analyses identified the same controlling variables. Nonetheless, these researchers as well as others (Bijou, Peterson, & Ault, 1968; Mace & Lalli, 1991) stress the

importance of functional analysis validating the results of descriptive analysis. A potential explanation for these results could be that all observations for descriptive and functional analyses were conducted during predetermined times and activities. The research was conducted in this fashion because it is a more time-efficient method that was comparable to the functional analysis.

Appendix B

Caregiver Information Sheet

My name is Andrea Piotrowski and I am a Masters student at the University of Manitoba. I am conducting research at Holy Family Nursing Home in order to complete my thesis requirement for the Masters' program. My study compares two methods of assessing behavior, with a particular focus on problem behaviors of elderly individuals. My advisor on this project is Dr. Stephen Holborn, an associate professor at the University of Manitoba. The ethics committee of Holy Family Nursing Home and the University of Manitoba have reviewed and approved this research project.

If you agree to participate in this study, either myself or another psychology student who will be serving as my research assistant will conduct an interview with you regarding a resident's problem behavior. This interview will last between 45-90 minutes. In addition, myself or my research assistant will come in to observe problem behavior of the resident participant. Each session will last approximately 20 minutes (although this time may vary) each weekday for a few weeks. These sessions will be videotaped and subsequently scored at a later time. After the observations are complete, a short intervention will be implemented. The intervention will consist of minor changes to certain aspects of the resident's daily living which may be disturbing to the resident, other residents, or caregivers. These changes are aimed at increasing comfort and decreasing disturbance. You may be asked to participate in making these minor changes. All interventions will be explained to you and the resident fully before they are implemented. At the end of the research project, you will be asked to complete a short questionnaire regarding benefits of the research.

All information collected in this research will be confidential. Neither your name nor personal information will appear in this thesis paper or any publications. As well, you are free

to withdraw from the study at any time and for any reason. The option of withdrawing also applies to the resident participant. The videotapes will be kept in a secure place and will be destroyed five years after the study is completed. The tapes are kept for five years after the completion of the study, in case the data needs to be reanalyzed for purposes of publishing the results in a psychology journal. In addition, you will be receiving the results of the study once it is completed.

If you have any questions about the research, either prior to or during data collection, please feel welcome to call me at 334-4466 or my advisor, Dr. Stephen Holborn, at 474-8245. Thank you very much for agreeing to participate in the study.

Sincerely,

Andrea Piotrowski (B.Sc., B.A. Hons.)

Caregiver Form

I _____ agree to participate in the research project conducted by Andrea Piotrowski for her Masters' thesis.

I understand that:

1. The study compares two methods of assessing and behavior, with a particular focus on problem behavior of elderly individuals.
2. I will be asked to answer questions in an interview and complete a questionnaire regarding the benefits and downfalls of the project at the end of the study
3. Dr. Stephen Holborn, an associate professor at the University of Manitoba, will be supervising the project, and the ethics committee from Holy Family Nursing Home and the University of Manitoba have reviewed and approved the research.
4. Certain residents of Holy Family Nursing Home will be videotaped.
5. I may be asked to participate in a brief intervention with the resident.
6. All information collected will be kept confidential and neither my name nor personal information nor those of the residents will be revealed in presentation or publications of this research.
7. I can leave the study at any time and for any reason.
8. I will receive feedback about the study once it is completed.

Signature: _____ Date: _____

Appendix B (cont')

Resident Information Sheet

My name is Andrea Piotrowski and I am a Masters student at the University of Manitoba. I am conducting research at Holy Family Nursing Home in order to complete my thesis requirement for the Masters' program. My study compares two methods of assessing behavior, with a particular focus on behaviors of elderly individuals. My advisor on this project is Dr. Stephen Holborn, an associate professor at the University of Manitoba. The ethics committee of Holy Family Nursing Home and the University of Manitoba have reviewed and approved this research project.

If you agree to participate in this study, either myself or another psychology student who will be serving as my research assistant will come and videotape some of your behavior every weekday for a few weeks. Each session will last approximately 20 minutes (although this time may vary). These sessions will be videotaped and subsequently scored at a later time. There will be no videotaping done during personal hygiene (e.g., toileting, bathing, undressing). You will also have the option of being interviewed and answering questions about some of your behaviors. After the observations are complete, a short intervention will be implemented. The intervention will consist of minor changes to certain aspects of living in a personal care home that may be disturbing to you, other residents, or caregivers. These changes are aimed at increasing comfort and decreasing disturbance. All interventions will be explained to you fully before they are implemented. At the end of the research project, you will be asked to complete a short questionnaire regarding the benefits of the research.

All information collected in this research will be confidential. Neither your name nor personal information will appear in my thesis or in any publications. As well, you are free to

withdraw from the study at any time and for any reason. The videotapes will be kept in a secure place and will be destroyed five years after the study is completed. The tapes are kept for five years after the completion of the study in case the data needs to be reanalyzed for purposes of publishing the results in a psychology journal. In addition, you will be receiving the results of the study once it is completed.

If you have any questions about the research, either prior to or during data collection, please feel welcome to call me at 334-4466 or my advisor, Dr. Stephen Holborn, at 474-8245. Thank you very much for agreeing to participate in the study.

Sincerely,

Andrea Piotrowski (B.Sc., B.A. Hons.)

Resident Form

I _____ agree to participate in the research project conducted by Andrea Piotrowski for her Masters' thesis.

I understand that:

1. The study compares two methods of assessing and behavior, with a particular focus on specific behaviors of elderly individuals.
2. I will be videotaped during my daily interactions with staff and other residents.
3. I will have the option of being interviewed and asked questions about some of my behaviors.
4. I will participate in a short intervention after a few weeks of observation and videotaping.
5. Dr. Stephen Holborn, an associate professor at the University of Manitoba, will be supervising the project, and the ethics committee from Holy Family Nursing Home and the University of Manitoba have reviewed and approved the research.
6. All information collected will be kept confidential and neither my name nor personal information will be revealed in presentation or publications of this research.
7. I can leave the study at any time and for any reason.
8. I will receive feedback about the study once it is completed.

Signature: _____ Date: _____

Appendix B (cont')

Family Information Sheet

My name is Andrea Piotrowski and I am a Masters student at the University of Manitoba. I am conducting research at Holy Family Nursing Home in order to complete my thesis requirement for the Masters' program. My study compares two methods of assessing behavior, with a particular focus on behaviors of elderly individuals. My advisor on this project is Dr. Stephen Holborn, an associate professor at the University of Manitoba. The ethics committee of Holy Family Nursing Home and the University of Manitoba have reviewed and approved this research project.

If you agree to allow the resident to participate in this study, either myself or another psychology student who will be serving as my research assistant will come and videotape some of their behavior every weekday for a few weeks. Each session will last approximately 20 minutes (although the time will vary for each participant). These sessions will be videotaped and subsequently scored at a later time. There will be no videotaping done during personal hygiene (e.g., toileting, bathing, undressing). You will also have the option of being interviewed and commenting on particular behaviors exhibited by the resident. After the observations are complete, a short intervention will be implemented. The intervention will consist of minor changes to certain aspects of living in a personal care home that may be disturbing to the resident, other residents, or caregivers. These changes are aimed at increasing comfort and decreasing disturbance. All interventions will be explained to the resident fully before they are implemented. At the end of the research project, you will have the option of completing a short questionnaire regarding the benefits of the research.

All information collected in this research will be confidential. Neither the name of the resident nor personal information will appear in my thesis or in any publications. As well, the resident is free to withdraw from the study at any time and for any reason. The videotapes will be kept in a secure place and will be destroyed five years after the study is completed. The tapes are kept for five years after the completion of the study in case the data needs to be reanalyzed for purposes of publishing the results in a psychology journal. In addition, you will be receiving the results of the study once it is completed.

If you have any questions about the research, either prior to or during data collection, please feel welcome to call me at 334-4466 or my advisor, Dr. Stephen Holborn, at 474-8245. Thank you very much for agreeing to allow the resident to participate in the study.

Sincerely,

Andrea Piotrowski (B.Sc., B.A. Hons.)

Family Form

I _____ agree to allow _____
to participate in the research project conducted by Andrea Piotrowski for her Masters' thesis.

I understand that:

1. The study compares two methods of assessing and behavior, with a particular focus on specific behaviors of elderly individuals.
2. I will have the option of being interviewed and commenting on particular behaviors exhibited by the resident.
3. The resident will be videotaped during daily interactions with staff and other residents.
4. The resident will participate in a short intervention after a few weeks of observation and videotaping.
5. Dr. Stephen Holborn, an associate professor at the University of Manitoba, will be supervising the project, and the ethics committee from Holy Family Nursing Home and the University of Manitoba have reviewed and approved the research.
6. All information collected will be kept confidential and neither the resident's name nor personal information will be revealed in presentations or publications of this research.
7. The resident can leave the study at any time and for any reason.
8. I will receive feedback about the study once it is completed.
9. I will have the option of filling out a questionnaire regarding the benefits of this research.

Signature: _____ Date: _____

FUNCTIONAL ANALYSIS INTERVIEW FORM

Person with challenging behavior(s) _____

Age _ _____ Sex M F

Interviewer _____

Respondent(s) _____

Date of Interview _____

A. DESCRIBE THE BEHAVIOR(S)

1. What are the behaviors of concern? For each, define the topography (how it is performed), frequency (how often it occurs per day, week, or month), duration (how long it lasts when it occurs), and intensity (What is the *magnitude* of the behaviors [low, medium, high]? Does it cause harm?). _____

Behavior	Topography	Frequency	Duration	Intensity
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
9.	_____	_____	_____	_____
10.	_____	_____	_____	_____

2. Which of the behaviors described above occur together? (e.g., occur at the same time; occur in a predictable "chain"; occur in response to the same situation)

From Functional Assessment and Program Development for Problem Behavior: A Practical Handbook, 2nd edition, by R.E. O'Neill, R.H. Horner, R.W. Albin, K. Storey, J.R. Sprague, and J. Newton. c 1997. Reprinted with permission of Wadsworth Publishing, a division of Thomson Learning. FAX 800 730-2215.

B. DEFINE POTENTIAL ECOLOGICAL EVENTS THAT MAY AFFECT THE BEHAVIOR(S)

1. What *medications* is the person taking (if any), and how do you believe these may affect his/her behavior?

2. What *medical complications* (if any) does the person experience that may affect his/her behavior (e.g., asthma, allergies, rashes, sinus infections, seizures)?

3. Describe the *sleep cycles* of the individual and the extent to which these cycles may affect his/her behavior.

4. Describe the *eating routines and diet* of the person and the extent to which these routines may affect his/her behavior.

5. Briefly list below the person's typical daily schedule of activities.

6:00 _____	2:00 _____
7:00 _____	3:00 _____
8:00 _____	4:00 _____
9:00 _____	5:00 _____
10:00 _____	6:00 _____
11:00 _____	7:00 _____
12:00 _____	8:00 _____
1:00 _____	9:00 _____

6. Describe the extent to which you believe activities that occur during the day are *predictable* for the person. To what extent does the person know the activities that will be happening, when they will occur, and the consequences (e.g., when to get up, eat dinner, shower, go to school/work, etc.)?

7. About how often does the person get to make choices about activities, reinforcers, etc.? In what areas does the person get to make choices (e.g., food, clothing, social companions, leisure activities)?

8. Describe the *variety of activities* performed on a typical day (exercise, community activities, etc.). _____

9. How many other people are in the setting (work/school/home)? Do you believe the *density of people* or interactions with other individuals affect the targeted behavior(s)?

10. What is the *staffing pattern*? To what extent do you believe the number of staff, training of staff, quality of social contact with staff, etc., affect the targeted behavior?

11. Are the *tasks/activities* presented during the day boring or unpleasant for the person, or do they lead to results that are preferred or valued?

12. What *outcomes* are monitored regularly by staff (frequency of behaviors, skills learned, activity patterns)?

C. DEFINE EVENTS AND SITUATIONS THAT PREDICT OCCURRENCES OF THE BEHAVIOR(S)

1. Time of Day: When are the behaviors most likely? Least likely?

Most likely _____

Least likely _____

2. Setting: Where are the behaviors most likely? Least likely?

Most likely _____

Least likely _____

3. Social Control: With whom are the behaviors most likely? Least likely?

Most likely _____

Least likely _____

4. Activity: What activity is most likely to produce the behavior? Least likely?

Most likely _____

Least likely _____

5. Are there particular situations, events, etc. that are not listed above that “set off” the behaviors that cause concern (particular demands, interruptions, transitions, delays, being ignored, etc.)?

6. What would be the one thing you could do that would be most likely to make the undesirable behaviors occur?

D. IDENTIFY THE “FUNCTION” OF THE UNDESIRABLE BEHAVIOR(S). (WHAT CONSEQUENCES MAINTAIN THE BEHAVIOR(S)?)

1. Think of each of the behaviors listed in Section A, and define the function(s) you believe the behavior serves for the person (i.e., what does he/she get and/or *avoid* by doing the behavior?)

<u>BEHAVIOR</u>	<u>WHAT DOES HE/SHE GET</u>	<u>WHAT DOES HE/SHE AVOID</u>
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

2. Describe the person’s most typical response to the following situations.
 - a. Are the above behavior(s) (more likely), less likely, or unaffected if you present him/her with a difficult task?

 - b. Are the above behavior(s) (more likely), less likely, or unaffected if you interrupt a desired event (eating an ice cream, watching TV)?

- c. Are the above behavior(s) more likely, less likely, or (unaffected) if you deliver a “stern” request/command/reprimand?
- d. Are the above behavior(s) (more likely), less likely, or unaffected if you are present but do not interact with (ignore) the person for 15 minutes?
- e. Are the above behavior(s) more likely, less likely, or (unaffected) by changes in routine?
- f. Are the above behavior(s) (more likely), less likely, or unaffected if something the person wants is present but he/she can’t get it (i.e., a desired object that is visible but out of reach)?
- g. Are the above behavior(s) (more likely), less likely, or unaffected if he/she is alone (no one else is present)?

E. DEFINE THE EFFICIENCY OF THE UNDESIRABLE BEHAVIOR(S)

1. What amount of *physical effort* is involved in the behaviors (e.g., prolonged intense tantrums vs. simple verbal outbursts, etc.)?

2. Does engaging in the behaviors result in a “payoff” (getting attention, avoiding work) every time? Almost every time? Once in awhile?

3. How much of a *delay* is there between the time the person engages in the behavior and gets the “payoff?” Is it immediate, a few seconds, longer?

F. DEFINE THE PRIMARY METHOD(S) USED BY THE PERSON TO COMMUNICATE

- 1) What are the general expressive communication strategies used by or available to the person? (e.g., vocal speech, signs/gestures, communication books/boards, electronic devices, etc.) How consistently are the strategies used?

- 2) Indicate which behaviors the person exhibits to achieve the following functions:

Communication Responses

Communication Function	Complex Speech (sentences)	Multiple words (not sentences)	One word utterance	Other utterances (whine, shout)	Complex signing	Single signs	Shakes head	Echolalia	Pointing	Leading (pulls hand)	Grab/Reach	Gives objects	Increased Movement (hyperactivity)	Moves close to you	Move away/leave situation	Fixed gaze	Facial expression	Aggression	Self-injury	Other
Request attention																				
Request help																				
Request preferred food/ objects/activities																				
Request a break																				
Show you something or someplace																				
Indicate physical pain (headache, cut, sickness)																				
Indicate confusion																				
Protest or reject situation that you have created																				

- 3) With regard to receptive communication ability:
 - a) Does the person follow verbal requests or instructions? If so, approximately how many? (List if only a few).

 - b) Is the person able to imitate physical models for various tasks or activities? (List if only a few).

- c. Does the person respond to signed or gestural requests or instructions? If so, approximately how many? (List if only a few.)

- d. How does the person indicate *yes* or *no* (if asked whether he/she wants to do something, go somewhere, etc.)?

G. WHAT EVENTS, ACTIONS, AND OBJECTS ARE PERCEIVED AS POSITIVE BY THE PERSON?

1. In general, what are things (events/activities/objects/people) that appear to be reinforcing or enjoyable for the person?

H. WHAT "FUNCTIONAL ALTERNATIVE" BEHAVIORS ARE KNOWN BY THE PERSON?

1. What socially appropriate behaviors/skills does the person perform that may be ways of achieving the same *function(s)* as the behaviors of concern?
2. What things can you do to improve the likelihood that a teaching session will occur smoothly?
3. What things can you do that would interfere with or disrupt a teaching session?

I. PROVIDE A HISTORY OF THE UNDESIRABLE BEHAVIORS AND THE PROGRAMS THAT HAVE BEEN ATTEMPTED

Behavior	How long has this been a problem?	Programs	Effect
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Appendix D

Data Recording Sheet for Mrs. Jenkins

RESIDENT'S ID: _____

DATE: _____

TIME: _____

RECORDER: _____

<u>ANTECEDENT</u>	<u>BEHAVIOR</u>	<u>CONSEQUENCE</u>
-------------------	-----------------	--------------------

Appendix D (cont')

Data Recording Sheet for Mrs. Simpson

DATE: _____

RECORDER: _____

TIME RANG TIME IN TIME OUT REASON CG RESPONSE

Appendix D (cont')

Data Sheet for Mrs. Lester

Date: _____
 Time: _____
 Setting: _____
 Observer: _____
 Resident: _____

Key	
<u>Define Behavior:</u>	
<u>Define Antecedent</u>	<u>Define Consequence</u>
1	1
2	2
3	3
4	4
5	5

Observation Intervals (10 s each)	Occurrence of Behavior	Occurrence of Antecedent					Occurrence of Consequence				
		1	2	3	4	5	1	2	3	4	5
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Comments: _____

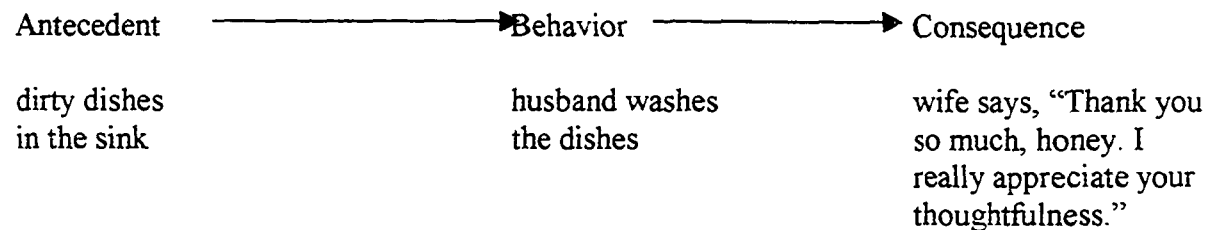
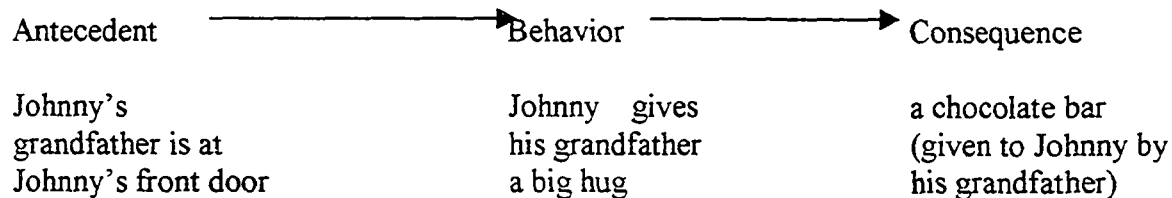
Appendix E

OBSERVER TRAINING PACKAGE

The purpose of this training package is: a) to familiarize you with basic terms in behavioral assessment; and b) to provide you with written examples of problem behavior, so that you will be able to practice identifying key components to assess behavior when you are scoring videotapes of actual behavior.

Behavioral Assessment

Behavioral assessment refers to defining and measuring behavior and then finding the environmental events which control it, to enable problem behaviors to be changed. A *behavior* is basically anything a person says or does. The environmental events which control the behavior are known as antecedents or consequences. *Antecedents* are events, including the behavior of others, which occur immediately before the problem behavior. The situation in which the problem occurs, the actions of other people or the client's own actions provide stimuli which can be controlling antecedents. *Consequences* are those events which occur immediately after the problem behavior and either increase (reinforcers) or decrease (punishers) it.

Example 1Example 2

EXERCISE 1

Read Scenario 1 on page 3 along with the vignettes and then identify the problem behavior, and *potential* antecedents and consequences on the data recording sheet on page 4.

EXERCISE 2

Read the Scenario 2 on page 5 along with the vignettes and then identify the problem behavior, and *potential* antecedents and consequences on the data recording sheet on page 6.

NOTE: Remember that there could be more than one antecedent or consequence for each vignette.

SCENARIO #1 – MRS. SMITH

Mrs. Smith is an 80-year old woman who has been living in a personal care home for the past 8 years. She was admitted into the personal care home after her husband passed away and she was unable to take care of herself due to a stroke she suffered 10 years ago that left her paralyzed on her left side. Mrs. Smith is in a wheelchair, however, she attends physical therapy three times a week for stretching and maintaining strength on her “good” side. She enjoys leaving the ward to go to therapy and does well in her exercises. However, occasionally when Mrs. Smith is waiting her turn in the physical therapy room, she constantly yells at the therapists and says, “I don’t want to wait anymore. It’s my turn!” These actions are frustrating to the therapists as well as disturbing to the other residents waiting their turn.

Vignette 1. On 8/11 Mrs. Smith was brought down to therapy and was seated next to Mr. Jones who was riding a stationary bicycle. After about 5 minutes, Mrs. Smith said, “Hurry up, I’ve been waiting too long I want to do my exercises.” The assistant therapist replied, “You’re going to have to wait your turn, just like everyone else, Mrs. Smith.” After another 5 minute Mrs. Smith said, “It’s my turn now!” This time, the assistant therapist ignores Mrs. Smith. 5 minutes later, Mrs. Smith says, “Why is this taking so long?” Finally, seeing that Mrs. Smith is disturbing other residents, a therapist comes to do exercises with Mrs. Smith.

Vignette 2. On 10/11 Mrs. Smith was brought down to therapy and sat next to Mrs. Friesen by the window. There were no outbursts today.

Vignette 3. On 12/11 Mrs. Smith came to therapy and sat next to Mrs. Gallagher who was riding a stationary bicycle. Mrs. Smith sat quietly for about 10 minutes and then said, “Who’s going to take me now?” Mrs. Smith was ignored by therapists and residents. Mrs. Smith says the same thing but a little louder. This time, Mrs. Gallagher says, “They are busy now. Just wait your turn.” Mrs. Smith responds by saying, “It is my turn now! I’ve been here 10 minutes already.”

Vignette 4. On 15/11 Mrs. Smith comes to therapy and sits next to Mr. Mason by the pulleys. Mrs. Smith sat and spoke with Mr. Mason for about half-an-hour. She was subsequently taken to do her exercises with no problem.

Vignette 5. On 17/11 Mrs. Smith came to therapy and sat next to Mr. Jones by the stationary bicycle. Mrs. Smith would call out to the therapist and say, “I want to do my exercises now.” The therapist responded, “Mrs. Smith, please wait your turn. We have many other residents to work with, who were here first.” Mrs. Smith said, “Fine. Take me back to my room. I don’t want to be here.” Being busy with other residents, the therapist asks a volunteer to take Mrs. Smith back to her room.

DATA SHEET FOR SCENARIO #1

Name: _____

Date: _____

VIGNETTE PROB. BEH. ANTECEDENT(S) CONSEQUENCE(S)

1

2

3

4

5

SCENARIO #2 - MR. BARRETT

Mr. Barrett is a 76-year-old gentleman who has resided in a personal care home for 4 months. He has a mild form of dementia. He was admitted into the home after spending 6 months in the hospital recovering from a hip fracture; however, he can walk with the aid of a walker. During lunchtime, Mr. Barrett sometimes spits food on the floor. This behavior is disturbing to residents eating their lunch and to staff members who must clean up the food.

Vignette 1. On 01/12, Mr. Barrett is given chicken soup, mashed potatoes, green beans, chicken and jello for lunch. He eats all of his chicken soup, but when he tastes the green beans, he spits them out on the floor. A nurses' aide comes by to wipe up the mess and says, "Mr. Barrett, please do not spit on the floor. The other residents do not like to see you spit." Mr. Barrett continues to eat and finish his lunch with no more incidents.

Vignette 2. On 02/12, Mr. Barrett has vegetable soup, lasagna, and cookies for lunch. Today, he spit out some of his soup. A nurse comes to Mr. Barrett and says, "Mr. Barrett, that's disgusting! Don't you have any manners? The other residents feeling sick when they see you spit." After a couple of minutes, once again Mr. Barrett spits his soup on the floor. This time the nurse ignores him.

Vignette 3. On 03/12, Mr. Barrett goes out with his family for lunch, so no observations were done today. When asking the family how Mr. Barrett ate at lunch, they said that there were no problems.

Vignette 4. On 04/12, lunch consisted of tomato soup, a ham sandwich and custard. Mr. Barrett ate very well, however, after one bite of the custard he spit it out on the floor. Mr. Carter, who was sitting next to him, said, "That's rude! Stop spitting!" Mr. Barrett gets up and goes to his room.

Vignette 5. On 5/12, Mr. Barrett had cabbage soup, fish, cole-slaw, and an apple for lunch. Once again, Mr. Barrett spits the cabbage soup out. A nurse came by and said, "If you cannot eat properly with the others, then you will have to eat alone." She preceded to take Mr. Barrett and his meal into the hallway to eat. He finished his soup and then went to his room.

DATA SHEET FOR SCENARIO #2

Name: _____

Date: _____

VIGNETTE PROB. BEH. ANTECEDENT(S) CONSEQUENCE(S)

1

2

3

4

5