

# **Rigor versus Relevance in Structured Observational Strategies in Research on Agitated Behaviors in Persons with Dementia**

*Eilon Caspi Ph.D.*

The contribution of structured observational data collection strategies (e.g., using a structured observation schedules) to the understanding of agitated behaviors among persons with dementia is tremendous. The time consuming nature of research designs, which involve direct observations, make these strategies efficient and cost-effective. However, a major limitation of these structured observational strategies appears to be largely overlooked in the design of the majority of studies using these strategies. As will be demonstrated below, this limitation can be summarized in the distinction between rigor and relevance. Specifically, it is well established by dementia care experts that in order to fully understand agitated behaviors in persons with dementia, the situational circumstances, sequence of events, causes, and triggers (antecedent events) contributing to the development of these behaviors need to be thoroughly documented and analyzed (Raia, 1999; Zgola, 1999; Cohen-Mansfield & Martin, 1999; Teri et al. 2005).

Consistent with these views is the recommendation to classify incidents of aggressive behaviors among persons with dementia based on the sequence of events that lead to the behaviors rather than in terms of the nature of the aggressive acts (Ware, Fairburn, & Hope, 1990). Supporting this view is Lawlor's commentary (Lawlor, 1999, as cited in Turner, 2005) on Allen-Burge and colleagues (1999) review of interventions for behavioral and psychological symptoms of dementia in which he condemns the studies evaluated for ignoring etiology and focusing on observed behavior. Lawlor states that, "The complexity of the etiology and maintenance of challenging behavior in dementia suggests that a multi-factorial approach needs to be taken to both understanding and intervention." The design of the majority of existing pre-structured observational strategies does not reflect, is not up-to-date, and is not consistent with these experts' opinions. Specifically, these strategies are very limited in their ability to follow a resident or a group of residents *continuously for an extended time period of time* and to capture the sequence of events leading and contributing to the agitated behaviors.

The nature of agitated behaviors and the ways in which they tend to develop and manifest make existing pre-structured observational strategies unsuitable to research efforts aimed at capturing the origins and situational root causes of these behaviors. On the one hand, agitation and irritability reactions in persons with dementia can be very spontaneous and short-lived (Hay

et al. 2003) and such episodes are most often reflex actions to frustrating situations (Crisis Prevention Institute, 1987, as cited in Eller, Griffin, & Mote, 2003). Pre-structured time-sampling observational strategies may therefore potentially miss these short-lived but clinically significant behavioral manifestations. On the other hand, agitated behaviors can develop gradually, sometimes evolving from initial subtle manifestation of irritability, restlessness and anxiety (Eller, Griffin, & Mote, 2003; Hurley, Volicer, & Mahoney, 2005). In these cases, pre-structured time-sampling observational strategies may miss these early negative signs as well as unfolding circumstances leading to the agitated behavior. This limitation represents a missed opportunity for prevention of agitated behaviors in persons with dementia as previous research has shown that an antecedent event can be observed in the majority of these behaviors. For example, a study by Ryden, Boessenmaier, & McLachlan (1991) on aggressive behaviors in cognitively-impaired nursing home residents showed that an antecedent event could be identified for 98% of the aggressive behaviors. In addition, a study by Caspi (in press) showed that in the majority of incidents of resident-to-resident aggressive behaviors in special care units for persons with dementia an early warning sign and trigger could be observed prior to the aggressive act.

Furthermore, Sherratt and colleagues (2004) conducted a review of the literature of music interventions in persons with dementia. These authors report on momentary time-sampling (MTS) technique where the observer records whether or not the behavior is occurring exactly at the end of a pre-specified time period (Brulle & Repp, 1984). The limitation of MTS technique is that the true extent of discrete episodes of behavior may be under-estimated, whereas continuous behaviors may be overestimated (Bowie & Mountain, 1993, as cited in Sherratt et al. 2004).

In his book *The Stream of Behavior* Barker (1963, p. 19)" explains, "Methods that divide the behavior continuum into arbitrary time intervals dismantle the behavior stream. The destructive effect of these methods is automatic when they involve bits of behavior stream that are shorter than the units of the behavior phenomenon with which one is concerned."

Numerous studies used pre-structured observation strategies (such as time sampling and/or spatial sampling methods) while focusing on older adults with agitated behaviors. In these studies, the specific time and/or location and/or target of the observations were determined prior to the study.

*Examples of studies using pre-structured observational schedules in persons with dementia:*

1. A study focusing on agitated behaviors in which individual residents were observed for three consecutive minutes during each hour of a 24-hour day for two-three months (i.e., stratified random time-sampling) using the Agitation Behavior Mapping Instrument (Cohen-Mansfield et al., 1989).

2. A study in which the time-use and behavior problems among 24 agitated and severely cognitively-impaired nursing home residents were examined. Each observation lasted for three consecutive minutes per hour (only one observation of each resident was scheduled per hour) (Cohen-Mansfield, Marx, & Werner, 1992).

3. Bridget-Parlet and colleagues (1994) reported on a study in which the research staff was typically present on the unit for only two hours a day. The observers used Timewand observation, which is a non-obtrusive technology designed to allow the continuous recording of behaviors and environmental characteristics (Eiler, Nelson & Jensen, 1989). The authors of the study stated that, “inevitably much behavior was not directly observed.” Specifically, five of the seven residents who exhibited no physically aggressive behavior during the observation times had had extensive and long-lasting verbally aggressive behavior. The authors concluded,

“The time-limited nature of the study was not entirely sensitive to the episodic nature of aggressive behavior demonstrated by particular individuals with Alzheimer’s disease. Physically aggressive behavior that occurs only once per day, or even once a week, could still be critical to assessment of the person’s volatility. The brief recording intervals of the Timewand could easily miss these events.”

4. A study examining the relationship between agitation and friendships among 59 residents with mild-to-moderate cognitive impairment in a special care unit of an intermediate care facility. Three scans per hour were conducted (each lasting 3 to 5 minutes), seven days a week, between 9:00 a.m. and 9:00 p.m., for six months, producing more than 17,000 observations. Observations were instructed to begin the first scan at the top of the hour, the second scan at 25 minutes after

the hour, and the third scan at 50 minutes after the hour. The order of observation was the day room, hall/nurses' station, and dining room, unless there was a scheduled meal, in which case the order was reversed. Observations began in the most heavily populated location (Kutner et al., 2000).

5. A study in which the observers used a computer-assisted observational tool to record activity situations and corresponding behaviors and affects of seven residents every 10 minutes, from 8:00 a.m. to 8:00 p.m., across four days (Wood et al., 2005).

6. A study examining the differences in resident affect, alertness, and behavior during recreation time compared to ordinary time. Each investigator observed eight nursing home residents (out of 35 residents), in a random order, for five minutes each hour (Schreiner, Yamamoto, & Shiotani, 2005). The results showed that there were no observations of "angry" facial expressions in the entire 3,854 minutes (i.e., more than 64 hours) in which the 35 residents were observed.

### *Conclusion*

Due to the evolving nature of agitated behaviors in persons with dementia, there is a need to develop direct observation schedules or methods that are designed to capture the situational circumstances, sequence of events, causes, warning signs, and triggers (antecedent events) that leading to these behaviors. In addition, in light of the complex nature of agitated behaviors and the methodological challenges involved in capturing them, researchers interested in enhancing understanding of the situational causes of these behaviors should consider using technologies such as Care-Media: Automated Video and Sensor Analysis for Geriatric Care (NSF 0205219) (Bharucha et al., 2006). This technology enables recording and analyzing the lives of residents continuously in real-time in the public areas of dementia units using automated speech, image, and natural language processing, that is, detecting the trajectory of subtle changes in affect, behaviors, and activity patterns as well as antecedents and consequences of incidents.

## References

- Barker, R.G. (1963). *The stream of behavior: Explorations of its structure and content*. New York: Appleton-Century-Crofts.
- Bharucha, A.J., London, A.J., Barnard, D., Wactlar, H., Dew, M.A., & Reynolds, C.F. (2006). Ethical considerations in the conduct of electronic surveillance research. *Journal of Law, Medicine, & Ethics*, 34(3), 611-619.
- Bridget-Parlet, S., Knopman, D., & Thompson, T. (1994). A descriptive study of physically aggressive behavior in dementia by direct observation. *Journal of the American Geriatrics Society*, 42, 192-197.
- Brulle, A.R., & Rapp, A.C. (1984). An investigation of the accuracy of momentary time sampling procedures with time series data. *British Journal of Psychology*, 75, 481-485.
- Caspi, E. (in press). Aggressive behaviors between residents with dementia in an assisted living residence. *Dementia: The International Journal of Social Research and Practice*.
- Cohen-Mansfield, J. & Martin, L.S. (1999). Assessment of agitation in older adults. In P.A. Lichtenberg (Ed.), *Handbook of Assessment of Clinical Gerontology* (pp. 297-330).
- Cohen-Mansfield, J., Werner, P., & Marx, M.S. (1989). An observational study of agitation in agitated nursing home residents. *International Psychogeriatrics*, 1(2), 153-165.
- Cohen-Mansfield, J., Marx, M., & Werner, P. (1992). Agitation in elderly persons: An integrative report of findings in a nursing home. *International Psychogeriatrics*, 4, 221-240.
- Eiler, J. M., Nelson, W. W., Jensen, C. C., & Johnson, S. P. (1989). Automated data collection using bar code. *Behavior Research Methods, Instruments, & Computers*, 21, 53-58.
- Eller, S., Griffin, L., & Mote, C. (2003). Clinical assessment and management of agitation in residential settings. In D.P. Hay, D.T. Klein, L. Hay, G.T. Grossberg, & J.S. Kennedy (Eds.). *Agitation in patients with dementia: A practical guide to diagnosis and management*. Washington, D.C.: American Psychiatric Publishing.

Hay, D.P., Klein, D.T. Hay, L., Grossberg, G.T., & Kennedy, J.S. (2003). *Agitation in patients with dementia: A practical guide to diagnosis and management*. Washington, D.C.: American Psychiatric Publishing.

Hurley, A.C., Volicer, L., Mahoney, E. K. (2005). Neurologic Disorders. In P.A. Tabloski, (Ed.), *Nursing Care of the Elderly* (pp.711-753), NJ: Prentice Hall.

Kutner, N.G., Brown, P.J., Stavisky, R.C., Clark, W.S., & Green, R.C. (2000). "Friendship" interactions and expression of agitation among residents of dementia care unit. *Research on Aging*, 22(2), 188-205.

Raia, P. (1999). Habilitation therapy: A new starscape. In L. Volicer & L. Bloom-Charlette (Eds.), *Enhancing the quality of life in advanced dementia* (p. 23). Philadelphia, PA: Brunner/Mazel.

Ryden, M.B., Boessenmaier, M., & McLachlan, C. (1991). Aggressive behavior in cognitively-impaired nursing home residents. *Res Nurs Health*, 14, 87-95.

Sherratt, K., Thornton, A., & Hatton, C. (2004). Music interventions for people with dementia: A review of the literature. *Aging and Mental Health*, 8(1), 3-12.

Teri, L., Huda, P., Gibbons, L., Young, H., & Van Leynseele, J. (2005). STAR: A dementia-specific training program for staff in assisted living residences. *The Gerontologist*, 45(5), 686-693.

Turner, S. (2005). Behavioural symptoms of dementia in residential settings: A selected review of non-pharmacological interventions. *Aging & Mental Health*, 9(2), 93-104.

Ware, C., Fairburn, C.G., & Hope, R.A. (1990). A community-based study of aggressive behaviour in dementia. *International Journal of Geriatric Psychiatry*, 5, 337-342.

Wood, W., Harris, S., Snider, M., Patchel, S.A. (2005). Activity situations on an Alzheimer's disease special care unit and resident environmental interactions, time use, and affect. *American Journal of Alzheimer's disease and other Dementias*, 20(2), 105-118.

Zgola, J.M. (1999). *Care that works: A relationship approach to persons with dementia*. Baltimore: The Johns Hopkins University Press.