

Wandering As a Goal-Seeking Behavior: Examining Wanderers' Negotiation With the Physical Environment

Dae Han Kim

Department of Architecture, Seoul National University, Seoul, Korea

Abstract

Wandering behavior is a serious problem among the elderly in nursing homes, yet it has received relatively little study by those interested in gerontology. The research that has been done has generally regarded wandering behavior as an aimless, directionless movement. Only a few studies have addressed the problem after first assuming that wanderers have a goal to their movement, and fewer still have explored the role of the physical environment on the wanderer's behavior. None have combined the two approaches. In this paper, the physical environment will be looked at for support of the theory of wandering as a goal seeking behavior. In a pilot study using behavior maps, the movements of wanderers and non-wanderers are analyzed and compared for the amount of visual access and exposure their locations contain. While the behavioral implications of these two measurements are considered, the limitations of the results are also discussed, so that their relationship to the cause of wandering behavior may be better understood. By implying that wandering is not a totally aimless but purposeful behavior at least in the subconscious level, constructive design implications can be suggested that would make wandering a more pleasant experience for the wanderer and increase the ease of the nursing home staff's management of the problem.

Keywords: wandering, nursing home, environmental psychology

1. INTRODUCTION

Among the elderly in nursing homes, symptoms such as progressive loss of memory capacity, judgement difficulties and decreased functional ability have all been identified as significant problems (Geiger, 1988). Wandering behavior has also been characterized as a serious and frequent problem (Barton, 1979; Rader, 1987), however, it has received surprisingly little study in gerontology and related fields (Dawson and Reid, 1978).

One reason for this lack of study has been the opposing views presented of wandering behavior among literature. For example, Snyder, Rupprecht, Pyrek, Brekhus and Moss (1978) see wandering as a tendency to move about, either in a seemingly *aimless* or disoriented fashion, or in pursuit of an undefinable or unobtainable goal. Dawson and Reid (1987) also define wandering behavior as "frequent and/or unpredictable pacing with no *discernable* goal." In contrast, Robb (1985) views wandering as "moving about under one's own *volition* into unsafe situations while experiencing an impaired cognitive status." Both views support the common belief that wand

ering behavior is dangerous and undesirable. Hussian (1983) characteristically describes wandering as: occurring without regard to environmental constraints or hazards (enter into another's territory, paying no attention to traffic), and having no specific destination, or an inappropriate one such as a childhood home.

Of the two opposing views, wandering as an aimless but dangerous behavior seems to have prevailed, and the immediate goal of the intervention against wandering behavior has been to simply stop or reduce it. The most commonly, and perhaps conveniently, employed means for this goal have been physical restraints and drugs. These approaches achieve the goal but at the price of the wanderer's self-esteem and physical health. Most mind-altering drugs,

for example, result in side effects that impair physical well-being (Monsour and Robb, 1982). In fact, the very word "wandering" carries a connotation of something unworthy. A neutral term would be "ambulation," which several researchers have already begun to use (e.g., Hussian, 1986). In this paper, however, the term "wandering" will be used to be consistent with common usage.

If wandering is viewed as an intentional (or at least semi-intentional) ambulation, it would be worthwhile to explore and fully understand the intention that triggers wandering. Then a more fundamental and less offending solution for wandering may be provided. It is this relatively new approach that shall be examined next.

2. A DIFFERENT INTERPRETATION OF THE WANDERING BEHAVIOR

Hussian (1986), in his description of severe behavioral problems in institutionalized settings for the elderly, classifies wanderers into four types:

1. Exit seekers: They are trying to leave. The reasons for leaving may vary but their immediate goal is to get out.
2. Akathisiacs: They are restless, aimless movers who pace or fidget. Their wandering is often induced by prolonged use of psychotropic medications.
3. Self-stimulators: They may go to a door and turn the knob but the purpose is to provide stimulation rather than to exit.
4. Modelers: They simply follow others around. They are usually severely demented and will wander only in the presence of others.

By creating classifications, Hussian implicitly suggests

that wandering is not always an act of aimlessly moving about, but could be an act of seeking mental comfort (especially in the case of the first group of wanderers – "exit seekers"), or stimulation (in the case of "self-stimulators").

Similarly, Rader, Doan and Schwab (1985) contend that wanderers have their own "agenda" which triggers wandering. They claim that wandering, as well as confusion and aggression, often stems from feelings of loneliness and separation. In order to alleviate these feelings, the nursing home residents set up and implement their "agenda." Rader et al. (1985) present an example of a typical agenda behavior. If a resident says that he/she must write to his/her mother, who passed away a long time ago, then he/she needs to feel connected to someone. Thus they conclude that attending to and honoring the resident's agenda behavior would enable the staff to help reduce wandering in nursing homes (Rader et al., 1985; Rader, 1987).

The nursing home residents' need for a feeling of attachment to someone is important. Due to their functional/cognitive deficiencies they cannot maintain themselves, and thus heavily rely on the nursing home staff for their activities of daily living. This requires frequent and intimate interaction between the residents and the staff, which is unequivocally emphasized by both researchers and practitioners (e.g., Cohen, Coppel, and Eisdorfer, 1983; Dye, 1986; Haycox, 1983). Powell and Courtice (1983) vividly describe the need for intimate interaction between nursing home residents and staff:

Patients exhibit tremendous anxieties about being left alone by the caregiver, even for brief periods of time. This is true even when the caregiver is [the nursing home staff] whom the patient does not actually know well. That person – the one who feeds, dresses, supervise bathroom habits, and comfort the patient – comes to be viewed by the patients as his primary source of security. (p.141)

Thus it seems that a major agenda in the wandering behavior of nursing home residents is seeking interaction with the staff, or at least reassurance that they are tied to their caregiver. Then, two important questions arise: (1) how do the nursing home residents implement this agenda; and (2) in what way does their implementation result in wandering behavior?

Unfortunately, as the view of wandering behavior as a goal-seeking behavior is relatively new and uncommon, there has not been any systematic study of wandering behavior which answers the above questions, especially the second. Rader et al. (1985) contend that confused nursing home residents exhibit agenda behavior in an attempt to meet their felt social, emotional or physical needs at a given time. Unfortunately, these agenda behavior result in abnormal behavior, one of which is wandering. However, the authors fall short of explaining how and/or why the residents' attempts are actually transformed into wandering.

Another important issue which is more often than not ignored in the behavioral study of wandering, is the physical environments. Although two studies have addressed this issue (Cornbleth, 1977; Snyder et al., 1978), they were

based on the view that wandering is just an aimless movement in the building and its vicinity, and thus miss the whole notion of wandering as an agenda behavior.

Wandering is essentially the act of walking around in the physical environments, be it buildings, street blocks, etc. The environment can encourage wandering by adding to the confusion of residents. It can also reduce wandering, if it has distinctive environmental cues for navigating, such as labels, signs and even cooking odors or the sound of television in a lounge area. Providing some clues (e.g., color coding) is a common practice in nursing homes, but those provided rarely aid the habitual wanderers and are more helpful to the visitor than to the residents (Snyder et al., 1978). At this time it is more important and necessary to explore the way in which the nursing home residents recognize the physical environment and take advantage of it in pursuit of their agenda.

An old and not widely known study (Rivlin, Proshansky, and Ittleton, 1970) provides an insight on how mentally impaired people recognize the physical environment and cleverly utilize the given conditions of that environment. Rivlin and her co-workers had noticed that patients rarely used the solariums located at the remote ends of several psychiatric wards in a large mental hospital in New York City, even though the rooms had a television set and compelling views of the city. In order to encourage patients to use this space, and to relieve congestion in a more centrally located dayroom, the researchers rearranged the solariums to facilitate private, recreational, and social behaviors.

The results showed that the new arrangements significantly increased the patients' use of the solariums, but that

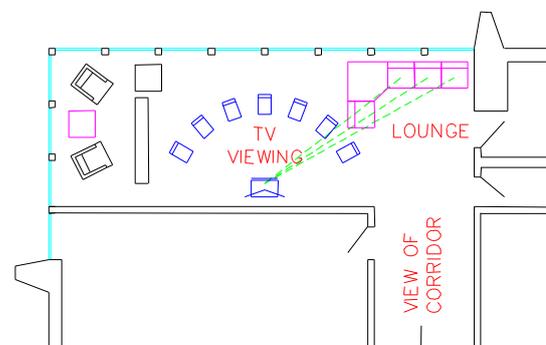


Figure 1. Solarium studied by Rivlin, et al. (1970) showing the locations preferred by patients watching TV (Source: Archea, 1984, p.23)

this increased use did not occur as was planned. Instead of occupying the area that had been designated as the television viewing area, the patients who watched television tended to sit in the lounge area and watch the television by turning their heads at an awkward angle (see Figure 1). The main difference between the two areas was that the lounge offered an unobstructed view of the corridor which ran the entire length of the ward, whereas the viewing area only allowed people to see the television set. The implications of the Rivlin study are: (1) that even the mentally impaired patients seem to have the ability to judge where

they should place themselves in order to see what is going on in the remainder of the ward; and (2) that furnishings and equipment placed unfavorably with respect to the ability to monitor the ongoing activities and events in the surrounding area will not be used as intended.

It should be noted that the ability to see the surrounding area from where one is located depends on the attributes of the physical environment, which has significant influence on interpersonal situations. According to Goffman (1971), an individual in everyday social intercourse *subconsciously* sets up a strategy for dealing with reciprocal actions of themselves and others. One continuously presents oneself and one's actions to others in order to try to control the impressions that are formed of them, somewhat in the manner of an actor presenting a character to an audience (Goffman, 1959). To be able to perform these dramatic and strategic actions, one must be vigilant over one's surroundings. Appropriate behavior can only be based upon an awareness of persons positioned or likely to be positioned so as to judge one's actions (Goffman, 1971). A physical environment such as a room or lounge enclosed by walls presents a set of limits to the potential for vigilance, as walls and other visual barriers in the space would block visual surveillance.

Archea (1984), in his attempt to build a quantitative model of the dynamic relationship of the physical environment and human behavior in the context of interpersonal encounters, observed an interesting pattern in the spatial behavior of the patients in a mental hospital, which is similar to that of the Rivlin study. The basic design of the hospital building included an open nursing station, lounge and individual rooms along the corridor which was connected to the nursing station at the end. Archea observed that the patients almost always located themselves where they could be seen from the nursing station, except when they were sleeping or engaged in private behavior. From his observation, Archea speculated that a well-defined reward system operated at the hospital, and in order to get credit for appropriate behavior the patients felt they had to exhibit that behavior in full view of the staff, and so actually negotiated with the spatial arrangement of their physical environment in order to locate themselves where they could be easily seen by the staff.

Even though the people who were observed were patients in a mental hospital, they are comparable with the residents in nursing homes. In fact, Archea (1984) later did more systematic observations on the spatial behavior of elderly residents with chronic brain syndrome in the Philadelphia Geriatric Center and found an almost identical pattern of spatial behavior. The studies by Rivlin et al. (1970) and Archea (1984) shed light on the questions that were raised earlier with regard to wandering behavior of the residents of nursing homes: how do they implement the agenda (seeking for interactions with the staff, or at least reassurance that they are not forgotten by the staff); and in what way does their implementation result in wandering behavior?

When they feel insecure and separated from others, res-

idents may seek interaction with the staff, or at least want to assure themselves that they are tied to the staff. In order to do so, they may try to see the staff or make themselves visible to the staff. They have been using the same strategy throughout their everyday-lives before the deterioration of their mental ability and thus it may still reside in their sub-consciousness ready to be used. The ability to see and the potential for being seen at a give location varies as function of the spatial configuration of the setting (i.e., arrangement of visual barriers such as walls, doors, columns, etc.). In order to achieve interaction with the staff, patients must negotiate with the physical environment. For example, if their current location does not allow them to see the surrounding area and the staff's whereabouts, they may want to move to a location which provides a good visual surveillance. If their current location does not provide sufficient exposure of themselves to the staff, they may want to move to a location where they can be easily seen by the staff. In the course of their movement from one location to another, they may get lost and begin to wander, due to their lack of cognitive/functional skills.

In summary, it has been argued that (1) wandering behavior of the residents in nursing homes might not necessarily be an aimless movement; and that (2) it might rather be an act of implementing their agenda, which is to pursue more interaction with staff members. It has also been argued that (3) when the residents pursue more interaction with the staff, they might negotiate with the physical environment (or, more precisely, the arrangement of the visual barriers in the setting) in order to have more potential for visual contact with the staff; and that (4) during this negotiation, they may get lost and begin to wander because of their lack of cognitive/functional skills.

If a systematic study were to be developed to substantiate the above arguments, then a couple of steps could be taken to reduce wandering behavior as a problem. First of all, the positive aspect of wandering behavior (i.e., actively seeking a goal as contrasted to aimlessly pacing) would be demonstrated and may then be included as an encouraging element of reality orientation. Instead of ignoring the wanderer's goal and trying to force them to see only their immediate surroundings, a staff member could address the goal of the wanderer's behavior and let them express it fully. According to Rader et al. (1985), this understanding response to wandering behavior reduces the amount of time the staff must spend with the resident and reduces the frequency of wandering behavior.

Secondly, if wandering is proven to occur when residents are seeking more interaction with the staff, then it will be possible to predict the exact locations in nursing homes where this behavior is most likely to occur, and thus design these area to be positive wandering environments. Instead of erecting walls which would reduce the residents' ability to see and be seen by the staff, and thus induce wandering when they are unable to negotiate with the environment, open areas which encourage interaction between staff and residents might be provided.

3. PILOT STUDY

A pilot study was designed to demonstrate how such substantiation could be achieved. The hypothesis of the study was that wandering is a goal seeking behavior and that wanderers seek interaction with the staff. Furthermore, in gaining the information to achieve this interaction, wanderers place themselves in the locations with high degrees of visual access and exposure. If the study showed that wanderers position themselves in areas of higher degrees of visual access and exposure than non-wanderers, then it would be proven that wanderers had more information about their surroundings than non-wanderers, information necessary to achieve more interaction with the staff.

(1) Visual Access and Exposure Model

According to Archea (1984), visual access "is the potential for monitoring one's immediate physical surroundings by sight" (p.40). Visual exposure "is the possibility that one's own overt behavior can be monitored from his or her immediate physical surroundings by sight" (pp. 42-43). His model of visual access and visual exposure (upon which the pilot study was based) begins with the notion that:

each person is the center of a dynamic field of information about surrounding events and activities, to which his or her behavior is a continuous adjustment. As one's ability to monitor surrounding activities increases, so does one's awareness of emerging behavioral opportunities. Similarly, as the likelihood of being monitored by others increases, so does a person's accountability for his or her own behavior. Thus the regulation of interpersonal behavior is influenced by the possibilities for monitoring the behavior of others (access) and by the possibilities that others can monitor one's own behavior (exposure).

Even though all sensory modalities may be involved in this process, vision is the most directly affected by spatial variation at an architectural scale. In physically bounded settings, the potentials for seeing others (visual access) and for being seen by them (visual exposure) will vary as functions of the positions of walls and other visual barriers. In this manner, the spatial organization of the surrounding physical environment mediates the range of behavioral opportunities and obligation which are apparent to those within any given setting. The crux of this thesis is the notion that the arrangement of the physical environment regulates the distribution of the information upon which all interpersonal behavior is dependent. (pp.33-34; underline original)

Thus by measuring the degree of visual access and exposure a person has at a specific location within a setting, it is possible to measure the amount of visual information available for that person to process at that location in order to regulate his/her interpersonal behavior. The hypothesis of the pilot study was that wanderers seek more interaction with the staff by attempting to place themselves in positions with higher degrees of visual access and exposure than non-wanderers

(2) Method

By using data from the study of Snyder et al. (1978), a

comparison was made of the movements of wanderers and non-wanderers.¹ In this study, Snyder and her colleagues accurately mapped the movements of 8 wanderers and 8 non-wanderers in a nursing home over a 2-day period. Using the maps of one wanderer and one non-wanderer over the 2-day period (see Figure 2 for the original behavior maps for one wanderer and for one non-wanderer as appeared in the Snyder paper), and following the visual access and exposure model developed by Archea (1984), a grid with pre-calculated visual access and exposure values was superimposed on the maps providing a means of measuring the movement paths. The values on one grid were assigned according to the amount of visual access a specific location allowed. The values of a second grid were assigned according to the amount of visual exposure a point allowed.

Because the length of the individual paths differed, the visual access and visual exposure values along each path were recorded and then combined with those values of paths in the same category (wanderer or non-wanderer). Thus, one set of values of the visual access of the wanderer was obtained and one for the non-wanderer, and likewise one set of values of visual exposure for each group. Using these measures, Student's *t*-test was applied to compare the visual access and exposure values between a wanderer and a non-wanderer.

(3) Results

As stated earlier, the mapped movements of a wanderer and a non-wanderer by Snyder et al. (1978) were evaluated for their degree of visual access and visual exposure by superimposing grids with assigned values of the two measures over the maps. These values were assigned by taking into account the placement of physical barriers in the space (see Archea, 1986, for details of the calculation method used to determine visual access and exposure values). The results of these measurements are summarized in Table 1.

As the table shows, there were 81 cases (or points measured along the paths and those points were matched to the nearest grid points) for the non-wanderer and 405 cases for the wanderer. As expected from the findings of Snyder et al. (1978), the wanderer moved about more than the non-wanderer, which led to the higher number of cases. In terms of visual access, mean values of 2954.56 for the non-wanderer and 3661.79 for the wanderer were measured. Student's *t*-test was then used to compare these measures and a *t* value of -6.30 was found with 484 degrees of freedom significant to a .000 level. For the visual exposure, mean values of 3610.41 for the non-wanderer and 3920.42 for the wanderer were found. The results of Student's *t*-test then yielded a *t* value of -1.96 with 484

¹This paper describes a study of a sample of matched pairs of wanderers and non-wanderers and offers some psychosocial and management insights for understanding and working more efficiently with older people. The researchers of this paper constructed behavior mappings of them in order to reveal patterns of wandering and space use.

Table 1. Result of *t*-Tests of Visual Access and Exposure Values Between Non-Wanderers and Wanderers

	Cases	Mean	<i>t</i> value	df	prob.
Non-Wanderers	81	2954.6	-6.3	484	0.000
Wanderers	405	3661.8			

Visual Exposure					
	# of Cases	Mean	<i>t</i> value	df	2-tail prob.
Non-Wanderers	81	3610.4	-1.96	484	0.050
Wanderers	405	3920.4			

degrees of visual access and visual exposure. Referring back to Archea's definitions, increased visual access means increased awareness of emerging behavioral opportunities. Increased visual exposure means increased accountability for one's own behavior. The significantly higher values of both measures suggest that wanderers are not only aware of their behavior, but are controlling it so that others will be aware of it as well. They want to be noticed, and they want to be able to monitor as much of their surrounding environment as is possible.

4. DISCUSSION

Higher levels of visual access mean higher levels of accessibility to information about the surrounding environment. The pilot study results then prove that the wanderer had more information about the surrounding environment than the non-wanderer upon which to base his/her interpersonal behavior. This is information that would be necessary to wanderers if they wished to change their amount of interpersonal behavior and seek more interaction with the staff

Higher levels of visual exposure mean increased possibilities of observation by others of one's own behavior. The results of the pilot study show that the wanderer could be monitored by more people than the non-wanderer. If the wanderer was deliberately placing him/herself to increase the possibility of observation, the wanderer was trying to draw attention to him/herself. By attracting such attention, the wanderer might then be able to increase his/her amount of interpersonal behavior.

These results support the hypothesis of wandering as a conscious, or at least semi-conscious, goal seeking behavior in two ways. First, by showing a significant difference in the level of visual access and exposure between the wanderer and the non-wanderer, the pilot study brought to light the existence of a goal in the wanderer's movements. That goal is to move to positions of high visual access and exposure. Secondly, by understanding the behavioral implications of visual access and exposure, it can be reasoned that the wanderer places him/herself in these positions because they are favorable for initiating an "agenda," as described by Radar, et al. (1985). That agenda may be to increase the level of the wanderer's interpersonal behavior, as stated by the studies of Rivlin, et al. (1970) and Archea (1984). This increase in interpersonal behavior may be desirable in order to alleviate such feelings as loneliness, insecurity or fear.

There is, however, another way to interpret the results of the pilot study. While the behavioral implications of visual access and exposure support the argument of Radar et al. (1985) that wanderers may have an agenda for their

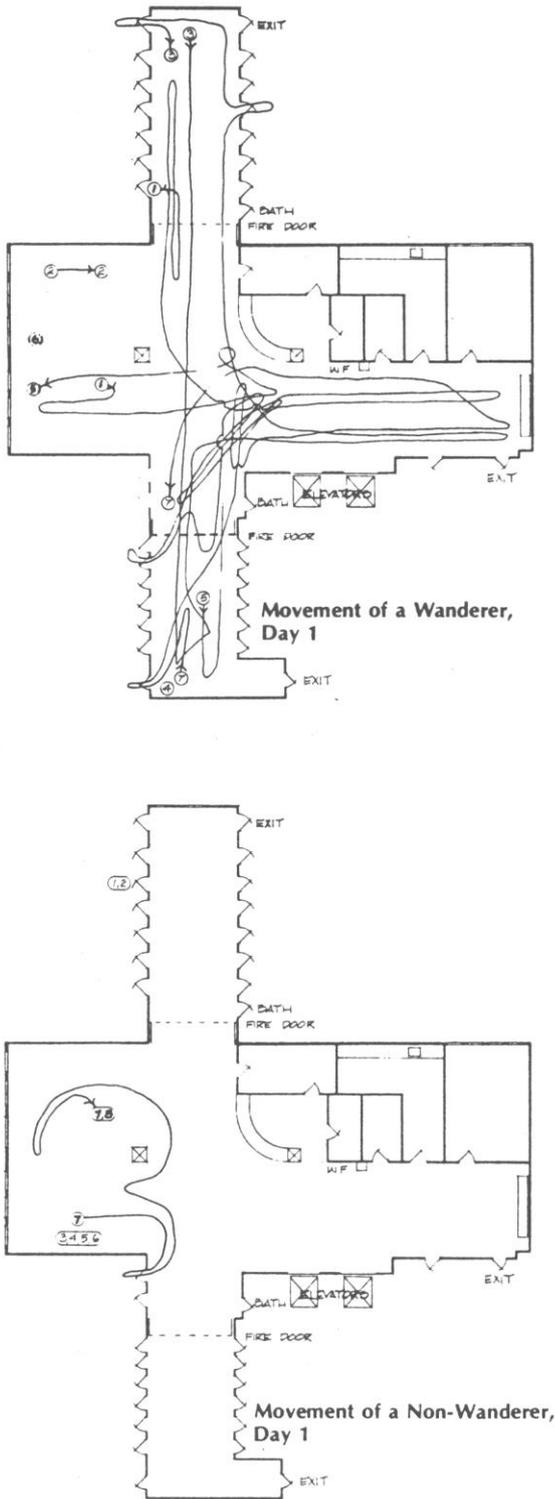


Figure 2. Example of the behavior maps from the study by Snyder, et al. (1978; p.274)

degrees of freedom to a .050 level of significance.

As can be seen from the results of the pilot study, the wanderer had a significantly higher degree of both visual access and visual exposure than the non-wanderer. Since the difference is significant, it can be assumed that the wanderer placed him/herself in positions with fairly high

movements, the pilot study did not attempt to uncover the wanderer's intentions. Without verifying the wanderer's intention, the significant difference in the levels of visual access and exposure between the wanderer and the non-wanderer may merely mean that the wanderer has a greater need for cognitive stimulation. This goal of self-stimulation has already been identified by Hussian (1986) as a possible reason for wandering. In order to determine if the wanderer's movement through spaces of high visual access and exposure leads to a correspondingly high level of perception about their environment, a much more thorough and controlled study should be done.

This pilot study has substantiated the view that wandering is a goal seeking behavior, however, and so the responses to wandering behavior as a problem that were suggested earlier may then be implemented. Positive reality orientation in which the goals of the wanderer are recognized and appeased may take the place of forceful entreaties by the caretaker for the wanderer to recognize the "real" setting. Once areas are identified as frequent wandering locations due to their high levels of visual access and exposure, they may be designed to accommodate wandering by removing any possible barriers which may cause the resident to lose sight of his/her goal, and consequently wander in a truly aimless manner due to his/her lack of cognitive and functional skills necessary to negotiate with the environment.

While the results of using the visual access and exposure model to explain wandering were encouraging, a note of caution must be included. These results were only from a pilot test. Although there is a significant difference in the measures of visual access and exposure between the two groups, with such a small sample, these differences cannot conclusively be attributed to the need by wanderers and non-wanderers for different amounts of information about their surroundings. However, this pilot study has suggested that by using the same methods on a larger sample it may yet be possible to confirm that wandering is not the aimless behavior it has long been believed to be. Instead, a more positive recognition of wandering as a goal seeking behavior may be established by understanding the influence of the physical environment on wanderers.

REFERENCES

- Archea, J. (1984) *Visual Access and Exposure: An Architectural Basis for Interpersonal Behavior*. Doctoral Dissertation. Man-Environment Relations Program, Pennsylvania State University, State College, Pennsylvania.
- Bartol, M. (1979) "Nonverbal communication in patients with Alzheimer's disease." *Journal of Gerontological Nursing*, 5: 21-31.
- Cohen, D., Coppel, D. & Eisdorger, C. (1983) "Management of the family." In B. Reisberg (Ed.), *Alzheimer's disease*. New York: Free Press.
- Combleth, T. (1977) "Effects of a protected hospital ward area on wandering and nonwandering geriatric patients." *Journal of Gerontology*, 32 (5): 573-577.
- Dawson, P. & Reid, D. (1987) "Behavioral dimensions of patients at risk of wandering." *Gerontologist*, 27: 104-107.
- Dye, C. (1986) "Behavioral approaches for enhancing mental health in the nursing home." In M Harper, B Lebowitz (Eds.), *Mental illness in nursing homes: agenda for research*. U.S. Department of Health and Human Services 86-1459: 111-127.
- Geiger, B. (1988) "Cognitive intervention in Alzheimer's disease." *Journal of Rehabilitation*, July/August/September: 21-24.
- Goffman, E. (1959) *The Presentation of Self in Everyday life*. New York: Doubleday.
- Haycox, J. (1983) "Social management." In B. Reisberg (Ed.), *Alzheimer's disease*. New York: Free Press.
- Hussian, R. (1983) "Assessment and treatment of severe behavioral problems in nursing homes and inpatient facilities for the elderly." Paper presented at the second annual Recent Advances in Clinical Psychology of Aging Conference. Portland, OR.
- Hussian, R. (1986) "Severe behavioral problems." In L. Terri & P. Lewinsohn (Eds.), *Geropsychological assessment and treatment*. New York: Springer 121-144.
- Monsour, N. & Robb, S. (1982) "Wandering behavior in old age: A psychosocial study." *Social Work*, 27: 411-416.
- Powell, L. & Courtice, K. (1983) *Alzheimer's Disease*. Reading, MA: Addison-Wesley.
- Rader, J., Doan, J. & Schwab, M. (1985) "How to decrease wandering, a form of agenda behavior." *Geriatric Nursing*, 6:196-199.
- Rader, J. (1987) "A comparative staff approach to problem wandering." *Gerontologist*, 27: 756-760.
- Rivlin, L., Proshansky, H. & Ittelson, W. (1970) "Changes in psychiatric ward design and patient behavior." *Transactions of the Bartlett Society*, 8: 9-32.
- Robb, S. (1985) "Exercise treatment for wandering behavior." Paper presented at the Gerontological Society of America's 38th annual scientific meeting, New Orleans, LA.