The Relationships Between
Slowness of Response, State Anxiety,
Social Isolation and Self-Esteem, and
Preferred Personal Space in the Elderly

by EVELYNN C. GIOIELLA

Preferred personal space is the amount of distance an individual prefers between himself and another for comfortable standing conversation. The amount of space selected is related to several variables including culture, eye contact, sex, degree of acquaintance of the dyad, state anxiety, and self-esteem. The last two variables, state anxiety and self-esteem, are especially important in elderly populations.

As people age, a slowing of response time occurs. This slowing is postulated to be a result of changes in the central nervous system. Research has demonstrated that slowing begins in the mid-thirties and becomes more profound as age increases. Tests of reaction time using simple unpaced tasks such as key tapping, show slowing of age. Complex, paced tasks such as a timed digit copying test show even greater slowing of response over age.

Elderly people are required in our fast-paced modern world to respond rapidly. Crossing streets, using buses and subways, moving in crowded supermarkets are daily activities in which the healthy elderly engage. It can be hypothesized that these demands of a fast-paced environment are incongruent with the capacity of the older person experiencing slowing of response. When the individual perceives an incongruence of environmental demand and capacity to respond, then anxiety occurs. This anxiety is a state or situational anxiety related to the events occurring at that moment in time.

Studies done on personal space show that in anxiety provoking situations, subjects prefer more distance between themselves and others. It was theorized that elderly people who experience slowing of response would also experience state anxiety, when required to respond rapidly and would therefore cope by preferring more personal space.

Another variable that affects the elderly and may contribute to the variation in preferred personal space is social isolation. Western culture devalues and isolates older people. Forced retirement, changes in economic status, lack of meaningful roles for the elderly, disparaging views expressed in visual, written, and verbal media all contribute to the isolation of this group. The inevitable loss of family, friends, and other members of the social network compound the factors which result in social isolation.

It was hypothesized in this study that one of the effects of social isolation would be a loss of self-esteem. Theorists have linked feelings of self-worth with personal relationships, roles one fulfills, views held of oneself by society, and a sense of belonging to an acceptable group. Since social isolation of the elderly implies loss of relationships, lack of fulfilling roles and a negative view of this group, then self-esteem should decrease as social isolation increases.

Research has demonstrated that self-esteem correlates with preferred personal space. Individuals with low self-esteem or who feel their self-esteem is threatened by the situation in which they find themselves, prefer greater distance between themselves and others. Elderly isolated persons with low self-esteem will therefore prefer more personal space.

In summary the literature supports the following hypotheses:

1. There is a negative correlation between slowness of response and state anxiety in the elderly.
2. There is a negative correlation between social isolation and self-esteem in the elderly.
3. There is a relationship between slowness of response, state anxiety, social isolation and self-esteem, and preferred personal space in the elderly.

4. These four variables each contribute independently to the variance of preferred personal space in the elderly.

Correlation and multiple regression statistical techniques were used to test the hypotheses. Data were gathered from 100 women between the ages of 55 and 88 who attended three senior citizens centers in New York City. These women were all born in the United States, they had been retired at least two years or had never worked for remuneration. All subjects were able to read and write English and were free of gross physical disability. These delimitations were introduced to control for culture and sex which affect personal space. Work status was addressed to exclude the group recently retired, since self-esteem may be altered during this time period. The ability to read and write English and be free of gross disability was necessary for the successful completion of the tools used in the study.

Five tools were used in data collection. The first tool administered after suitability as a subject was established, was the adulthood isolation index—past month. This index consists of a series of questions about face-to-face contacts with people in six categories. Each category represents a major social role. The categories are organizations, children, siblings, friends, relatives, and marriage. One point is given for a single contact, two points for two or more contacts in the past month. Scores ranged from a low of 1 to a high of 11. The mean score for the group interviewed was 4.86. This index has a test-retest reliability of .66. It does not address the quality of the relationships nor does it account for letter or telephone contacts. It primarily determines the number of roles in which a subject is involved, since loss of roles leads to social isolation.

The second instrument administered was the projective device for testing self-esteem. In this test subjects are instructed to place eight disks on a board in a straight line from left to right. One of the disks represents the subject, the other disks represent friends, relatives, health professionals, and acquaintances. The test assumes a left to right ordering based on learned hierarchical relationships like positive to negative, life to death, health to illness, high to low, etc. The position the subject selects for himself in the order indicates his self-esteem, the further to the left the higher the self-esteem. The device was used with a population of normal subjects and acute psychiatric patients. When the ordering of the two groups was compared the normal subjects had selected positions further to the left in the line significantly more often than the psychiatric patients (p < .001). This agrees with knowledge that acutely disturbed psychiatric patients have low self-esteem. A reliability of .80 was also obtained for this device in another experiment. Scores for self-esteem in this study ranged from a high of one to a low of eight. The mean score was 3.8.

After completion of these two devices, the investigator gave the subject three pages of digits selected from a table of random numbers and typed in columns and rows 96 to 1 page. The subjects were given two minutes to copy the digits. They wrote in pencil. The instructions were as follows: “Write these numbers as fast as you can but be sure I can read your handwriting. Write as you usually do; don’t try to be fancy. When I say go, write the numbers as fast as you can.”

Reliability of this writing speed test is reported at .85 if administered once and .92 if repeated twice. Validity of the instrument has been demonstrated by repeated use. Each time a slowing with age had been demonstrated. Scores on this test were determined by counting the number of legible digits copied in the two minutes. Previous research with this instrument has demonstrated that the scores are a measure of slowness of response.

This paced task was used to determine slowness of response and to stimulate state anxiety in subjects less able to write rapidly. Therefore, immediately following this exercise the Spielberger state anxiety scale was administered. This scale consists of 20 statements that ask the subjects how they feel at a particular moment in time. It has been demonstrated that scores on this scale increase in response to stress and indicate transitory anxiety experienced by people in situations where capacity to respond may be incongruent with the demand thus inducing anxiety. Subjects were instructed to indicate how they felt when performing the writing speed task given earlier in the interview.

Test-retest reliability of the A-state scale is low (median r or .32) as it should be given the transitory nature of the anxiety state it measures. Alpha coefficients however are high ranging from .83 to .92 thus establishing the internal consistency of the scale. Validity of the instrument has been tested by comparing the results obtained in stressful and nonstressful experimental conditions. A point-biserial correlation of .73 was obtained.

Scores on this scale ranged from 20 to 68 with a mean score of 34.9.

The last instrument administered was the projective device used to measure preferred personal space. This method of measuring preferred personal space is an adaptation of one developed by Dosey and is similar to a method used by Guardo.

A board 18 x 18 inches was placed on a table in front of the subject. The subject was given a figure
representing herself to place on the board. Another figure was given to the subject which represented a casual acquaintance. The subject was told the board represents a social hall in the afternoon. The subject was asked to place the figure on the board at a distance from herself that is comfortable for conversation. The investigator then measured the distance between the two figures.

Validity for this type of device was assessed by Gottheil in a study in which preferred conversational distance was measured directly and with the projective method. The direct measurement was done using a camera through a one-way mirror which photographed the distance selected by the subject. The subject was later asked to move pieces on a board to represent the same situation. A correlation of 0.4 which represents a $p$ of less than .01 for the two measurements was obtained.

Analysis of data obtained in this study was as follows. The correlation between slowness of response and state anxiety was not in the direction predicted and was not significant. The correlation between social isolation and self-esteem was in the direction predicted but was not significant. The four variables together predicted 25 percent of the variance in preferred personal space ($R^2 = .25$). This was significant at the .01 level. Three of the four variables were independently significant predictors, slowness of response ten percent, social isolation seven percent, and self-esteem seven percent. State anxiety contributed only one percent to the variance which was not significant. Thus, hypotheses one and two were not supported, hypotheses three and four were (with the exception of state anxiety).

Additional analysis using the age of the subject as an independent variable was done. If age is entered as the first variable in the multiple regression statement then it alone accounts for 25 percent of the variance in preferred personal space. The remaining variables add an additional eight percent resulting in an $R^2$ of .33 for the five variables. The correlation matrix showed that age has the highest correlation with preferred personal space, .51. Slowness of response is the next highest, .35; social isolation the third highest, .31; and self-esteem the fourth, .24. In this study, as age increased, slowness of response increased, social isolation increased, self-esteem decreased and preferred personal space increased.

The age of the subject was correlated with all of the variables and was by far the most important predictor of preferred personal space.

These results raise questions concerning the theory and the methodology used in the study. The role of state anxiety postulated by the investigator was not demonstrated. This may be related to one or more of the following factors.

Eisdorfer noted in one of his studies of elderly subjects' anxiety levels under paced conditions, that as demands for speed were increased the subjects' anxiety levels increased, but less than a comparison group of younger subjects. This study used measurement of free fatty acids and heart rate as indices of anxiety. He suggested that elderly subjects protected themselves from the anxiety of fast paced situations through an unknown mechanism and were able to limit their anxiety responses. It is possible that the subjects in the present study did not experience state anxiety during the testing procedure because of an unknown coping mechanism.

Problems in methodology and with the state anxiety tool are also probable factors. During the testing procedure the investigator noted that at times the subjects verbalized feelings of anxiety or demonstrated behaviors to anxiety but denied feeling anxious in the A-state test answers. The state anxiety questionnaire was developed and tested on subjects who fell in the young adult age range. The elderly subjects in this study may have misinterpreted the questions or responses on the tool, they may not have wished to admit feelings of anxiety or they may not have been conscious of their anxiety level. It is also possible that the writing speed exercise did not stimulate state anxiety as anticipated and that the range of scores obtained (20-68) reflects an unknown variable. The variable that was measured did correlate significantly with social isolation, $r = -.21$; self-esteem, $r = .18$. This investigator noted that some of the verbal responses of the subjects indicated a more generalized response to the questionnaire. That is, some subjects insisted on answering the questions in terms of their feelings most of the time and not just at the time of the testing procedure. Some of the test scores therefore may have reflected a trait or manifest anxiety level rather than a state anxiety level.

The number of factors which appear to have influenced the data obtained regarding state anxiety makes generating any single or overriding explanation unrealistic.

The second hypothesis in this study postulated a correlation in the elderly between social isolation and self-esteem. This investigator proposed that as social isolation increased, self-esteem would decrease. Further it was suggested that as self-esteem decreased the elderly would prefer more personal space. A small correlation in the direction predicted between social isolation and self-esteem was demonstrated, $r = .04$. The correlation was not significant. The lack of a significant correlation may be related to the tool used to measure social isolation. The tool used to elicit social isolation was confined to face-to-face role contacts in specific categories. A tool which measured social isolation in a broader context including nonface-to-face contacts or with less emphasis on family roles (four out of six}
categories were family roles) might have yielded a less isolated sample. The range for social isolation scores was 1 to 11, the mean score, however, was only 4.86.

It is also possible that an individual's self-concept or sense of self-esteem which is developed over a lifetime is less affected by social isolation in old age than this investigator anticipated. The positive and significant correlation of increasing age and decreasing self-esteem, r = .22, suggests that factors more important than social isolation contribute to low self-esteem in the elderly.

The hypothesis that preferred personal space would increase when self-esteem decreased in the elderly was demonstrated, r = .24. The theory that individuals with low self-esteem avoid further insults to their self-concept by increasing their preferred personal space was not refuted. However, the role self-esteem plays in the variance in preferred personal space in the elderly is small in comparison to other variables in this study.

Data obtained from the subjects in the study supported the investigator's premise that preferred personal space in the elderly is related to several variables. The most important predictor was the age of the subject. Roger's theories regarding the nature of man's energy field have heuristic value in explaining the data obtained in this study. If preferred personal space is an index of the boundary of man's energy field and if man's field expands over age, the preferred personal space should increase with age, independent of other variables, as was demonstrated in this study. Preferred personal space may be a part of developmental change in man and is thus age related.

The findings of this study have implications for nursing practice. The importance of assessing a client's behavior accurately is crucial to sound nursing intervention. It is possible that health care professions have misinterpreted a preference for more personal space in the elderly as withdrawal or disengagement. The care giver may then intervene by withdrawing in turn, thus contributing to isolation of this group. Or, the care giver may attempt to force a closeness on the client which violates the need for space and will undermine effective care. The elderly, as any other group, should be allowed to establish their own preferred space.

Direct application of the findings related to personal space to specific nursing interventions needs to be studied. Is side-by-side or right-angle seating a method of maintaining contact necessary for communication without unduly infringing on personal space? Burns 19 has noted that placing a table in the middle of a therapeutic group enhanced interaction with the elderly. This barrier may be serving as a space protector.

It will also be important to examine the use of touch in relating to the elderly and how this impinges on preferred personal space. Is the elderly client who reaches out to touch the nurse indicating that personal space needs are less in this type of relationship? Is the client indicating that the nurse is a significant other? Personal space decreases as degree of closeness of the relationship increases. Again, it would appear that the nurse should allow the client to establish this distance between them.

Finally, in teaching the general population about the aging process the preference for increased personal space should be included in the discussion of normal aging. Preparation for successful aging should be a part of health promotion and thus of nursing practice. Clients need to know what to expect of themselves as a part of this phase of development. This implies the need for further study of personal space throughout the life continuum. Attempts to clarify how closely this variable is related to man's energy field boundaries and how it is related to other developmental indices should be undertaken. This investigation was a descriptive study aimed at exploring variables related to personal space in the elderly. Health care professionals have in the past often operated without any theory base for practice. Descriptive research is an important tool in developing a sound base for practice. However, adequate testing of conclusions derived from descriptive studies is necessary before direct application to nursing practice should be made.

References