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College of Humanities and Sciences
Virginia Commonwealth University

This is to certify that the dissertation prepared by Stan J. Orchowsky entitled Person-Environment Interaction in Nursing Homes for the Elderly has been approved by his committee as satisfactory completion of the dissertation requirement for the Doctor of Philosophy degree in Experimental Psychology.

[REDACTED]
Director: Iris A. Parham, Ph.D.
Chairperson, Gerontology Program
Associate Professor of Psychology

[REDACTED]
Donelson R. Forsyth, Ph.D.
Assistant Professor of Psychology

[REDACTED]
Stephen W. Harkins, Ph.D.
Associate Professor of Gerontology

[REDACTED]
John P. Hill, Ph.D.
Chairman, Department of
Psychology

[REDACTED]
John M. Mahoney, Ph.D.
Associate Professor of Psychology

[REDACTED]
Elske van Panhuys Smith, Ph.D.
Dean, College of Humanities
and Sciences

[REDACTED]
William J. McAuley, Ph.D.
Assistant Professor of Gerontology

May 5, 1982
Date

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Person-Environment Interaction
in Nursing Homes for the Elderly

A dissertation submitted in partial fulfillment of
the requirements for the Degree of Doctor of
Philosophy at Virginia Commonwealth University

by

Stan J. Orchowsky

Director: Dr. Iris A. Parham
Chairperson, Gerontology Program
Associate Professor of Psychology
Virginia Commonwealth University
Richmond, Virginia

April, 1982

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Person-Environment Interaction
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Abstract

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ABSTRACT

There has been a growing interest in recent years in the study of person-environment interaction in the elderly. Several theoretical models have been proposed in the gerontological literature. Each of these models suffers from one or more limitations, including the restriction of requiring that the person and the environment be measured in the same terms, and the difficulty posed by attempting to empirically test the model.

A new model of person-environment interaction in the elderly is proposed here. The model views life satisfaction as the ultimate outcome variable. Feelings of personal control and choice are seen as intervening between life satisfaction and the remaining components of the model. At the level of the environment, the model proposes an interaction between residents' perceptions of the environment, and their evaluations of, or preferences for, the environment's various qualities. These environmental perceptions are in turn influenced by characteristics of the actual environment, residents' health, and personality factors.

A total of 44 residents and 121 staff members of three homes for the aged served as subjects for the present study. Assessment instruments used to operationalize the model

components included: residents' scores on the Life Satisfaction Index (LSI), residents' responses to 10 questions designed to assess feelings of control and choice, residents' scores on Moos' Sheltered Care Environment Scale (SCES; measuring environmental perceptions), resident's responses to seven questions, corresponding to the seven SCES subscales, regarding the ideal nursing home environment (measuring environmental evaluations), staff scores on the SCES (measuring the objective environment), staff ratings of residents on the 15 Murrayan need scales of the Adjective Check List (ACL; measuring personality factors), and interviewer assessments of residents' functional health.

An overall test of the usefulness of the model components in predicting residents' life satisfaction showed that feelings of control and choice, by itself, was a significant predictor of life satisfaction. The addition of the other model components did not improve the prediction of life satisfaction.

Further analyses tested the relationships between various components of the model. The results of these analyses confirmed the hypothesized interaction of environmental perceptions and evaluations influencing life satisfaction for four of the seven SCES sub-scales. Consistency between residents' perceptions and evaluations on the conflict, self-exploration, organization, and physical comfort sub-scales was related to greater life satisfaction.

Analysis of the remaining components showed that resident and staff ratings of the environment were not related, and

the differences observed between the two were not associated with health or personality variables.

The findings of the study are discussed within the context of methodological considerations as well as theoretical and empirical issues. It is suggested that the formulation of models of person-environment interaction in the elderly may be premature, given the relatively limited amount of research examining relationships among the various possible person, environment and outcome variables which could be considered.

The present results support the findings of previous studies of person-environment fit in the elderly. The findings do not, however, provide empirical support for the hypothesized existence of individual-difference factors, such as health and personality variables, which underlie environmental preferences or evaluations. It is concluded that the search for such factors be continued, and suggestions for future research toward this end are proposed.

REVIEW OF THE LITERATURE

Current theory and research in the area of person-environment interaction in gerontology is an outgrowth of various influences in the development of theory and research in personality and social psychology. The first of these influences is the work of personality theorists who included consideration of environmental factors in their explanations of human behavior. The two theorists who have had the largest impact on this area are Kurt Lewin and Henry Murray.

Lewin's Field Theory

One of the first personality theorists to consider the environment's effects on the individual was Kurt Lewin. One of the concepts introduced by Lewin which has been particularly relevant to the study of person-environment interaction in the elderly is "the psychological field" (Lewin, 1951). According to Lewin, the psychological field, at a particular point of time, consists of two basic elements: the person and the person's psychological environment (1951, p. 48). In order to understand and predict behavior, one must have knowledge of both the person and the psychological environment: " $B = f(PE)$ " (Lewin, 1935).

Person and environment, for Lewin, were inseparable. While the person has individual characteristics or predispositions, these can only be identified and distinguished from each other when they are associated with different behaviors

in the same situations (1935, p. 72). Similarly, environment objects, qualities and events are defined in terms of their "functional possibilities" for the person (p. 76). Environmental objects have "valences," which determine the direction (approach or avoid) of behavior towards that object. These valences, in turn, result from the extent to which the object or event can satisfy a need of the person (p. 77).

Thus one major contribution of Lewin's theorizing on person-environment interaction research in gerontology is the idea that behavior can only be understood by examining environmental influences and individual differences simultaneously (1935, p. 73). Another influence was Lewin's concept of the "life space," which he defined as consisting of "the person and the psychological environment as it exists for him" (1951, p. 57). There may be many aspects of the physical or social environment which may be said to objectively exist, but which are outside of the awareness of the person (that is, do not affect the person's life space). These aspects of the environment will not influence the person's behavior.

For Lewin, then, the subjective environment, that is, the person's perceptions of his/her environment, are the crucial determinants of behavior. To illustrate this point, Lewin (1951) offered the following example: "If

an individual sits in a room trusting that the ceiling will not come down, should only his 'subjective reality' be taken into account for predicting behavior or should we also consider the 'objective probability' of the ceiling's coming down as determined by the engineers. To my mind, only the first has to be taken into account" (p. 58).

Murray's Need-Press Theory

Research on person-environment interaction in gerontology has been most influenced by Henry Murray's concepts of "needs" and "press." Needs, according to Murray (1938), are hypothetical constructs which refer to the readiness of an individual to respond in a given way in a particular set of circumstances (p. 61). Needs have both qualitative or directional aspects, and quantitative, or energizing aspects. Thus needs provide both direction and motivation (energy) for behavior (1938, p. 60).

Murray identified two basic categories of needs, primary needs and secondary needs. Primary, or viscerogenic, needs are those which are fulfilled by bodily process: need for water, need for food, need for sex. Secondary, or psychogenic, needs are fulfilled through mental or emotional events: need for order, need for achievement, need for aggression. Within the latter category, Murray identified and defined 20 needs which he considered most important. These needs and their definitions are as follows: (need for) abasement, to submit to external force; achievement, to accomplish something diffi-

cult; affiliation, to form friendships and associations; aggression, to assault or harm someone else; autonomy, to resist influence or coercion; counteraction, to overcome defeat by retaliating; deference, to willing cooperate with a superior; defendence, to defend oneself against blame; dominance, to influence or control others; exhibition, to attract attention to oneself; harmavoidance, to avoid danger and physical pain; infaavoidance, to avoid failure and shame; nurturance, to aid and protect another; order, to arrange and organize; play, to relax and have fun; rejection, to ignore or exclude another; sentience, to seek sensuous impressions; sex, to form erotic relationships; succorance, to seek protection and sympathy; understanding, to analyze experiences (Murray, 1938, pp. 80-83).

The environmental component in Murray's theory is represented by the concept of "press." Press are objects or events in the environment which are defined according to their potential or actual effect on the person (1938, p. 117). Everything in the environment that the person believes can affect him/her, either positively or negatively, represents a press for that person. Press can be described in the same terms as needs: for example, a friendly person in the environment represents affiliative press for the person under study (1938, p. 21).

Murray also distinguished between "alpha" press

and "beta" press. Alpha press are press that can be said to objectively exist in reality, while beta press are the person's own perception and interpretation of environmental events or objects (p. 122). While information about alpha press may be of scientific interest, it is the beta press that determine behavior (p. 290).

Lewin and Murray seem to agree that environmental events or conditions interact with the individual's needs to produce behavior. For both theorists, it is the person's perception of his/her environment which is critical, and not some objective measure or assessment of the environment as it actually exists. In addition, Murray's definitions of need and press allow for a description of the person and the environment in comparable terms (for example, need for affiliation and an affiliative press). All of these aspects of Lewin's and Murray's theorizing have influenced the study of person-environment interaction in aging.

Situationism and Interactionism

Although Lewin and Murray both stressed the importance of factors outside the individual in predicting behavior, most personality research did not. Personality research was based on the premise that people's behavior is the result of individual factors and dispositions, which produce regularity and consistency of behavior. In 1968, Walter Mischel challenged that view in his book Personality and

Assessment. Mischel's basic argument was that behavior may be consistent over time, but it is generally not consistent across situations. This situational variability of behavior accounts for the fact that differences in situations can explain more of the variability in behavior than differences in persons (eg, Endler & Hunt, 1968, 1969).

Mischel's (1968, 1969) claims regarding the situational variability of behavior caused considerable controversy among personality theorists and researchers. Replies to Mischel's position sought to reaffirm the importance of the "person" (Alker, 1972; Bowers, 1973), while counter-replies defended Mischel's claim of the importance of the situation (Bem, 1972; Endler, 1973).

An occasional argument for or against one or the other of these positions still appears in the literature (eg, Epstein, 1979) and still draws a response (Mischel, 1979). Generally, however, the person-situation debate was resolved by the interactionist position, which maintained that behavior is a function of both the person and the situation (Bem & Allen, 1974; Endler, 1975; Magnusson & Endler, 1976). The interactional model views cognitive factors as the important determinant of behavior from the person side of the equation, and the psychological meaning of the situation for the individual as the determinant of behavior from the situational point of view (Endler & Magnusson, 1976; Mischel, 1979).

Thus the interactionist view of behavior as a function of both the person and the situation may be seen as the "re-discovery" of Lewin's and Murray's theories (Endler & Magnusson, 1978; Krauskopf, 1978). The reemergence of these ideas at that time provided the impetus for gerontologists and psychologists interested in studying aging individuals to consider both the person and his/her situation or environment.

Person-Environment Congruence

While experimental research focused on manipulating situations in studying person-situation interaction, applied research in the areas of education and industry sought to examine the interaction between the individual and his/her environment. The work of two investigators, George Stern and Lawrence Pervin, has been particularly influential in the study of person-environment interaction in the elderly.

Stern (1964) reintroduced Lewin's (1935) equation of behavior as a function of the person and the environment. Stern (1964) argued that both the person and the environment had to be evaluated in the same terms in order for comparisons to be made. He identified Murray's concepts of needs and press as the most useful ones for describing the person and the environment along equivalent dimensions.

One of Stern's most important contributions was the idea of "congruence" between the person and the environment. If needs and press are measured along the same dimension, it is relatively easy to compare the two directly. When needs

and press are at essentially the same level, then the need-press relationship is congruent. An unstable need-press relationship is termed dissonant, and will lead to a change in press or withdrawal of the individual from the environment. Congruent need-press relationships produce a sense of satisfaction for the individual, while dissonant relationships lead to dissatisfaction and stress (Stern, 1970, p. 8). In his own research, Stern (1964) found that people seem to choose environments which meet their needs--that is, people choose environments based on a congruence of needs and press.

Stern's work, conducted in high school, college, and industrial settings, provided a relatively straightforward paradigm for the study of person-environment congruence. In his research, Stern (1970) distinguished between the private beta press of a particular individual, and the consensual beta press of a group which shares similar perceptions of their environment. This latter type of press was measured using a series of true-false items which described various aspects of the institutional environment (1970, p. 13). These environmental attributes were organized around the needs identified by Murray (1970, p. 16).

Regarding the operationalization of Murray's need concept, Stern believed that the simplest measure was "preferences that the individual himself expresses in response to verbal descriptions of various possible activities" (1970, p. 10). Thus Stern's measure of needs listed

activities corresponding to the environmental qualities used to measure press. The person responding was to indicate if (s)he would find the activity pleasant or unpleasant. Since there was a one-to-one correspondence between the items used to measure needs and press, the degree of congruence or incongruence could be readily assessed.

A similar theoretical approach was taken by Pervin (1963) in his work on individual-environment fit in college environments. Like Stern, Pervin argued that for each person there exists an environment which matches the personality characteristics of the individual. The results of a good person-environment fit are high performance, satisfaction, and little or no stress, whereas the results of a poor fit are decreased performance, dissatisfaction, and stress (Pervin, 1968).

Like Stern, Pervin (1968) argued that the person and the environment should be measured in the same terms. To accomplish this, Pervin made use of the semantic differential technique (Osgood, Suci, & Tannenbaum, 1957). A total of 52 bi-polar adjective pairs accompanied by 11-point rating scales, were used to assess six concepts: college, self, students, faculty, administration, ideal college (Pervin, 1967a). Using this method, two concepts (such as college and self) were compared to each other by summing the absolute differences between their ratings on the 52 adjective scales (Pervin, 1967a).

Using this semantic differential method, Pervin was able to demonstrate in his research that dissatisfaction

with college (and, ultimately, dropping out of school) was related to a poor fit between the characteristics of the student and the college environment (Pervin & Rubin, 1967). In another study, Pervin (1967b) examined the issue of whether the direction of the person-environment discrepancy, rather than its absolute size, influenced dissatisfaction with school. His results showed that adding the direction of the discrepancy was not helpful in increasing the ability to predict student dissatisfaction.

Person-Environment Interaction in Gerontology

As noted previously, research in the area of person-environment interaction in the elderly is based on the theories of Lewin and Murray, and on the subsequent research of Stern and Pervin. The congruence model of person-environment interaction has been applied to the study of the elderly by Eva Kahana and her colleagues (Kahana, 1974, 1975, Kahana, Liang, & Felton, 1980).

Like Stern, Kahana believes that individuals are most likely to be found in environments which are congruent with their needs, and that stress and dissatisfaction are the results of a poor person-environment fit (Kahana et al., 1980). Unlike Stern, however, Kahana believes that measures of needs and press should be independent, since an individual's report of his/her environment is likely to be influenced by the individual's needs (1975, p. 186).

Kahana has identified seven dimensions (each comprised

of several subcomponents) along which person and environmental characteristics of nursing homes and their residents can be assessed: segregation, congregation, institutional control, structure, stimulation, affect, and impulse control (1974, pp. 209-210). Expanding on Pervin's (1967b) distinction between the absolute size of the person-environment discrepancy and the direction of the discrepancy, Kahana (1975) has proposed three possible models which might account for the proposed relationship between person-environment discrepancy or incongruence and outcomes. In the non-directional model, negative outcomes are related to the absolute size of the discrepancy, regardless of its direction. In the one-directional model, only negative incongruence (less of a given environmental characteristic than the individual needs) leads to negative outcome. A positive discrepancy between needs and press would be equivalent to no discrepancy at all in terms of its impact on outcomes for the individual. Finally, the two-directional model suggests that both positive and negative discrepancies result in negative outcomes, but not equally (as implied in the non-directional model). This last model predicts that a discrepancy in one direction will result in more negative impacts than a discrepancy in the other direction.

In her research, (Kahana et al., 1980) Kahana tested 124 elderly residents of three different nursing homes. Following Stern's (1970) suggestion, Kahana employed residents'

preferences for various aspects of the environment as the measure of the need concept. Staff assessments of the environment served as the measure of press, while life satisfaction was used as the measure of outcome. Her results showed that person-environment fit was an important predictor of life satisfaction only in the areas of congregation, impulse control and segregation. The test of the alternative models showed that the relationship between the direction of the person-environment discrepancy and outcomes was different for the different dimensions measured. Thus the study by Kahana et al. (1980) shows that person-environment fit along some dimensions is a significant predictor of life satisfaction in elderly nursing home residents.

Milton Nehrke and his colleagues have modified the procedures used by Kahana to measure person-environment fit (Nehrke, Morganti, Whitbourne, Hulicka, Turner, & Cohen, 1979; Sperbeck, Whitbourne, & Nehrke, 1980). Nehrke et al. (1979) criticized Kahana's use of staff ratings of the environment as the measure of press, preferring instead Stern's (1964) approach of obtaining resident assessments of aspects of the environment as the measure of press. Like Kahana, Nehrke et al. (1979) use individuals' preferences for environmental characteristics as their measure of needs. In addition, however, Nehrke believes that some indication of the salience or importance of each environmental quality to the individual

should be taken into account. Thus in Nehrke's research, person-environment congruence scores are adjusted by taking into consideration the individual's rating of the importance of each dimension.

Using 15 of the 18 subcomponents of the person and environment identified by Kahana (1974), Nehrke and his associates have developed the Environmental Perception, Preference, and Importance Scale (EPPIS). In their own research with elderly residents of a Veteran's Administration hospital, Nehrke et al. (1979) found that congruence on only two or three of the 15 EPPIS sub-scales was predictive of various outcome measures. In addition, a different set of two or three scales predicted outcomes for residents who lived in different locations within the same hospital. Thus Nehrke's findings are similar to Kahana's results in showing that congruence is predictive of outcomes for only a few of the dimensions considered.

Another empirical investigation of person-environment fit in the elderly, using a method similar to the one used by Nehrke, was recently reported by Harel (1981). Harel did not use either Kahana's or Nehrke's dimensions, but identified seven dimensions relating specifically to nursing homes: continued ties with things, continued ties with people, integration into the environment, personal life space, personal responsibility, basic need gratification, and social need gratification.

A total of 125 residents in 14 different homes rated the importance of each dimension, the presence of indicators in the environment of each dimension (equivalent to beta press, but labeled "quality of care indicators" by Harel), and preferences for these same indicators. Harel used five yes-no questions for each of the seven dimensions to assess residents' perceptions of the environment. If a resident indicated that some attribute was not present in the environment, (s)he was asked to indicate whether (s)he would like to have that attribute in the environment (Harel, 1981, p. 526). The comparisons of preferences with perceptions formed the basis for the congruence scores. Life satisfaction, morale, and satisfaction with treatment were the outcome measures considered.

Harel's results showed that congruence on only one of the seven dimensions (continuing ties with people) was significantly related to all three outcome measures. Like Kahana et al. (1980) and Nehrke et al. (1979), Harel found that person-environment congruence scores were useful in predicting scores on the outcome measures, but only for selected dimensions of the person and the environment.

Two additional theories, which do not involve the idea of person-environment fit, have appeared in the gerontological literature. Lawton (1975, 1977) has proposed a model that begins with Lewin's idea that behavior is a

function of the person and the environment. Lawton (1975) argues that Murray's concept of need is not the most useful conceptualization of the person component of Lewin's equation as applied to the study of older people. Instead, Lawton views the notion of "competence" as being the best representation of the person variable. Competence is defined by Lawton as "the theoretical upper limit of capacity of the individual to function in the areas of biological health, sensation, perception, motoric behavior and cognition" (1975, p. 21).

Lawton agrees with Murray's conceptualization of the environment in terms of press. He goes on to point out that the main dimension on which press can be classified is a strength dimension. Whether press are seen as positive or negative depends on their strength relative to the competence of the older individual (1975, pp. 25-26).

In Lawton's model, outcomes are conceptualized in terms of adaptive behavior and positive or negative affect (1977, p. 296). The interaction of competence and press to determine these outcomes is described by Lawton in terms of areas or zones in a two-dimensional space. There is an area of maximum adaptation, which occurs when press strength is neither too great nor too weak, and where level of competence is sufficient to deal with that press strength. As competence decreases, environmental qualities become more important as determinants of behavior and affect (1977,

pp. 296-297).

The model also proposes the existence of two zones which surround the area of maximum adaptation: the "zone of maximum performance potential" and the "zone of maximum comfort" (1977, p. 297). The former area is one where press strengths are slightly greater than optimal levels. The environment in this case is viewed as a stimulating one, and positive affect and behavior change are the result. The zone of maximum comfort involves press strengths which are just below the current adaptation level of the individual. Here the individual is "underchallenged," but behavior remains at an adaptive level and affect remains positive (1975, p. 30).

Finally, Lawton (1975) proposes two additional concepts to explain individual differences associated with the person-environment interaction: personality style and environmental cognition. Personality styles are enduring ways of experiencing the environment; examples of personality styles are introversion-extraversion and field dependence-independence (1975, p. 17). Environmental cognition refers to "processed environmental content," and is influenced by competence and personality style (1975, p. 35). This is similar to Murray's concept of beta press.

Lawton (1975) lists several testable hypotheses which can be directly derived from the proposed model. One of these involves the issue of the direction of person-envirom-

ment incongruence, examined by Stern (1967b) and Kahana et al. (1980). Lawton's model predicts that both positive and negative person-environment incongruence, defined in Lawton's model as press strengths which are much greater than or much less than the competence level of the person, will result in negative outcomes. Although these various hypotheses have been generated, Lawton's model has not yet been tested empirically.

Most recently, Moos (1980) has proposed a new conceptual framework for studying person-environment interaction in specialized living environments for the elderly. Moos' model begins with the "environmental system" and the "personal system." The former consists of four major areas: the physical setting of the facility, policy and program factors relevant to the facility, characteristics of residents and staff and the psychosocial climate of the facility. The personal system includes major characteristics of the individual, defined by Moos in terms of socio-demographic variables, health, personality factors, and coping skills.

The ultimate outcome factor in Moos' model is resident stability and change. This is operationalized in terms of such factors as resident morale, psychological well-being, health, and activity level. The relationship between the interaction of the personal and environmental systems and resident stability and change is mediated by three additional

factors in the model: cognitive appraisal, activation or arousal, and adaptation or coping.

Cognitive appraisal, according to Moos, involves the individual's evaluation of his/her environment as being potentially harmful, beneficial, or neutral. Although acknowledging the direct influence that personal and environmental factors can have on behavior, Moos argues that cognitive appraisal is "an essential mediating factor in most issues related to resident functioning" (1980, p. 82).

Activation or arousal is the next mediating variable in the model proposed by Moos. Activation occurs as a result of the individual's appraisal of the environment as requiring a response. As a result of this arousal, adaptation or coping efforts are initiated, bringing into consideration the third mediating factor in the model. Examples of specific coping responses which, according to Moos, result in positive outcomes include mastery strategies, impulse control, and the maintenance of independence (1980, p. 83).

Moos has also specified the possible relationships between the factors included in his model. Environmental and personal factors can influence each other directly, as when residents select which environment to enter, or when facilities choose which residents to admit. The model also allows for the possibility that characteristics of both the

person and the environment directly influence all of the mediating factors (appraisal, arousal, and adaptation), as well as the ultimate outcome factor, resident stability and change. In addition, both adaptation efforts and changes in outcome factors may result in new changes in the person or the environment.

The model proposed by Moos has not yet been empirically tested. Moos does not attempt to identify specific measures for the various components in his model, except for the use of his own scales developed to measure the environment (these scales will be discussed shortly).

It is apparent from this review that the only empirical evidence directly addressing the issue of person-environment interaction in gerontology has been based on the notion of fit originally proposed by Stern. As a consequence of their conviction that the person and the environment should be measured using the same terms, researchers like Kahana and Nehrke have not been able to take advantage of theoretical and methodological advances in other related areas of psychology and gerontology. Four such areas will be delineated and discussed here: measuring the person (needs), measuring the environment (press), the effects of relocation on the elderly, and experimental research on environmental intervention and its effects on the elderly.

Measuring the Person

Despite the fact that investigators like Kahana and Nehrke have used Murray's concept of need as the basis for their work, their emphasis on "fit" has led them to ignore well-established test instruments based on Murray's theory. The most widely used instruments are the Thematic Apperception Test (TAT), the Edwards Personal Preference Schedule (EPPS), the Adjective Check List (ACL), and the Personality Research Form (PRF). All of these instruments were designed to measure various combinations of the needs identified by Murray.

The application of standard measures such as these to elderly individuals, however, introduces many different problems. Schaie and Schaie (1977) have identified some of the general issues related to the assessment of personality variables in the elderly. These problems include the fact that very few measures have been designed for use with elderly subjects, cognitive deficits may make ratings difficult, scales with over a few items not relevant to the elderly person's current life situation may affect responses to all items, and the length of many instruments limit their ability to be used with older persons (Schaie & Schaie, 1977, p. 710). Neugarten (1977) also warns against the use of clinically oriented scales and scoring methods (such as some of those

used with the TAT) in measuring personality variables in aging individuals (p. 636).

Another issue in personality theory and measurement which is particularly relevant to the measurement of personality variables in the elderly is the use of the nomothetic versus idiographic approach. Gerontologists have begun to express the feeling that research with the elderly should involve methods which emphasize the uniqueness of the older person as an individual (see, for example, Nehrke et al., 1979). This argument has been expressed consistently in the areas of personality and social psychology by Daryl Bem.

Bem (Bem & Allen, 1974) has noted that almost all personality measures are based on the nomothetic method, which involves the imposition of a fixed set of concepts or attributes by which individuals are asked to describe themselves or others. That is, the experimenter determines the relevant descriptors, while the subject merely identifies the extent to which he or she fits that descriptor. According to Bem and Allen (1974), however, this is contrary to the idiographic manner by which such judgments are made by all of us on a day-to-day basis. In order to reach this latter judgment, researchers must be willing to give up the assumption that all traits are relevant to all people, and must allow each subject to determine those behaviors

and situations which compose a particular trait for him or herself (Bem & Allen, 1974, p. 517).

Clearly, Bem realized the problems inherent with the idiographic approach, not the least of which is quantifying the measurement of the person to an extent which would prove acceptable to nomothetically-oriented investigators. Bem apparently gave the matter serious consideration and, some four years later, was convinced that he could now predict "more of the people more of the time" (Bem & Funder, 1978).

According to Bem and Funder (1978), an assessment technique for examining persons and situations needs to be general enough to cover a wide variety of situations, needs to generate idiographic information to the greatest extent possible, and must allow for person-person and person-situation comparisons. The instrument they chose which satisfies these criteria is Block's (1961) California Q-Set. The Q-Set consists of 100 descriptive personality statements ("is a talkative individual", "behaves in an assertive fashion") which are sorted by the assessor into nine categories, ranging from the least to the most characteristic of the person being described. The assessor must place a pre-specified number of statements into each of the nine response categories.

Block (1961) identified one method for the use of the Q-Set. A group of experts construct an "ideal" Q-set of a given personality type; individuals' Q-Sets may then be

compared with this type. Block presents Q-Sets constructed by clinical psychologists of the optimally adjusted personality, the male paranoid and the female hysteric (Block, 1961, pp. 142-152).

Bem has modified this idea to apply to the study of person-situation interactions. Bem proposes substituting behaviors for diagnostic labels, so that a Q-Set "template" is constructed which describes the person most likely to exhibit a particular behavior in a particular situation (Bem & Funder, 1978).

According to Bem (Bem & Funder, 1978), one advantage of this approach is that templates can be constructed on the basis of data, observer ratings, or theoretical concerns. Bem and Funder (1978) used parents' Q-sorts of their children to determine the correlates of delay of gratification, and used theoretically generated Q-sorts to test the predictive validity of cognitive dissonance theory, self-perception theory, and self-presentation theory (an impression management theory presented by Tedeschi and his colleagues) in a forced-compliance situation. Bem and Lord (1979) employed Q-sorts of the type of person who would use the various possible strategies in a prisoner's dilemma game, and compared behavior in the game to subjects' and their roommates' Q-sorts to determine the ecological validity of the experimental procedure.

Another measurement technique endorsed by Bem is one of the measures of Murray's needs, the Adjective Check List. The ACL consists of 300 adjectives which measure 15 of Murray's needs along with several other scales which can be scored.

Respondents are asked to check those adjectives which they believe to be descriptive of themselves. The ACL can also be used by observers to describe the characteristics of others (Gough & Heilbrun, 1965).

The ACL generates descriptive information, as does the Q-sort technique. The latter, however, is time-consuming and can prove complex for naive respondents. By contrast, it is the simplicity of the ACL which contributes greatly to its popularity (the ACL ranks 26th in the list of the 99 most frequently referenced tests reviewed in the Mental Measurements Yearbook; Buros, 1978, Table 8).

Of the four standard measures of Murray's needs, the ACL is the only one which can provide descriptive information, and is flexible enough to be used to obtain self-reports or observer ratings. In addition, it does not suffer from problems of length or format (for example, the forced choice format of the EPPS) which would make its usefulness in assessing elderly subjects questionable. The validity of the ACL for use with an aged institutionalized sample has been established by Apfeldorf and Hunley (1971). It appears

then that the ACL has much to offer the psychologist or gerontologist who is interested in studying personality characteristics of the elderly within the framework of Murray's need theory.

Measuring the Environment

While the study of personality over the last century has generated a fantastic number of measurement instruments, the recently emerging area of environmental psychology has yet to develop the theory or methodology for conceptualizing environments (Stokols, 1978). Barker's (1968) concept of the behavior setting unit is one approach to the description and classification of environments, and Wicker (1974) has argued for the use of this approach in studying behavior-environment congruence. Barker's methods, however, are quite involved and detailed, so much so as to preclude their use for all but the most dedicated naturalistic observers. Recent work by Scheidt and Schaie (1978) provides a taxonomy of situations relevant to the elderly which may eventually prove useful in the study of person-situation interaction in this group of individuals.

In gerontology, there has been some work which has attempted to characterize and measure specialized environments for the elderly (such as nursing homes). Kleemeier (1961) proposed three dimensions along which special settings for the elderly could be categorized: a segregate dimension (the degree to which the setting allows residents

to have contact with the community), a control dimension (the degree to which residents must structure their lives according to institutional rules), and a congregate dimension (the degree of privacy that residents are able to maintain). Kleemeier also postulated that older people would prefer settings which were less segregated, less controlling and allowed for greater amounts of privacy (1961, p. 287). It should also be noted that the person-environment dimensions used by Kahana in her research include the environmental dimensions proposed by Kleemeier.

Based on Kleemeier's work, Pincus (1968) proposed four dimensions of the institutional environment in homes for the aged: isolation, structure, privacy, and resources. The first three dimensions are similar to Kleemeier's segregate, control, and congregate dimensions (respectively), while the resources dimension refers to the extent to which the environment provides opportunities for residents to engage in work and leisure activities.

Using these four dimensions, Pincus (1968) developed the Home for the Aged Description Questionnaire (HDQ), consisting of 36 statements describing a setting's programs and policies, physical plant, and staff and resident behavior. Using this instrument, Pincus and Wood (1970) showed that there was considerable variability among nursing home residents in their perceptions of the institutional environ-

ment.

In the psychological literature, the most carefully developed and evaluated method for assessing environments clearly belongs to Rudolph Moos. Moos (1973) defines three basic (psychological) dimensions of environments: relationship dimensions (the extent to which individuals are involved with the environment and each other), personal development dimensions (the extent to which the environment supports such development), and system maintenance and change dimensions (the extent to which the social environment and the individuals are controlled by rules and regulations, and the extent to which the environment changes, and how it changes). Using these three basic underlying dimensions, Moos has developed scales designed to assess a wide range of settings, including treatment environments (Moos, 1974), educational environments (Moos, 1978), and community and correctional environments (Moos, 1975).

Most recently, Moos has focused his attention on the measurement of the environments of sheltered care settings for the elderly. The result of this effort has been the development of an instrument known as the Multiphasic Environmental Assessment Procedure (MEAP; Moos & Lemke, 1979). The MEAP actually consists of four separate instruments designed to measure the physical features, policies and procedures, characteristics of residents and staff and

psychosocial milieu of sheltered care settings for the elderly.

The first part of the MEAP, designed to measure the physical characteristics of the setting, is the Physical and Architectural Features Checklist (PAF; Moos & Lemke, 1980). The PAF consists of a total of 180 yes-no questions regarding the presence or absence of various physical and architectural features in a setting. The items comprise nine sub-scales: physical amenities, social-recreational aids, prosthetic aids (such as handrails in halls), orientational aids (such as color-coding of floors), safety features, architectural choice (for example, individual heat controls in rooms represent choice), space availability, staff facilities, and community accessibility. The PAF is designed to be completed by an observer with the assistance of the administrator of the facility (Lemke, Moos, Mehren, & Gauvain, 1979).

The second part of the MEAP is the Policy and Program Information Form (POLIF; Lemke & Moos, 1980). The POLIF consists of 143 items designed to assess the setting's policy and program-related characteristics. The characteristics are organized into 10 scales: selectivity (of setting, regarding potential residents), expectations for functioning (refers to residents' functioning), tolerance for deviance, policy clarity, policy choice, resident control (for example, a resident council), provision for privacy,

availability of health services, availability of daily living assistance, and availability of social-recreational activities. The POLIF is completed through an interview with the facility administrator (Lemke et al., 1979).

The third part of the MEAP is the Resident and Staff Information Form (RESIF). The RESIF consists of 107 items and nine sub-scales: staff richness (variety of backgrounds of staff), resident social resources, resident heterogeneity, resident functional abilities, resident activity level, resident integration in the community, utilization of health services, utilization of daily living assistance, and utilization of social-recreational activities. The RESIF is completed through interviews with residents, reports from the administrator, and reviews of resident and staff records (Lemke et al., 1979).

The last part of the MEAP is the Sheltered Care Environment Scale (SCES), designed to measure the social climate of the facility (that is, environmental press; Moos, Gauvain, Lemke, Max, & Mehren, 1979). The SCES consists of seven scales, each with nine items: cohesion (resident and staff support of each other), conflict (whether residents express anger or criticize the facility), independence (of residents), self-exploration (whether residents are encouraged to express their feelings), organization (whether activities are planned

and rules enforced), resident influence (on policies and procedures of the institution), and physical comfort (including privacy). The SCES is a self-administered instrument which can be completed by residents and/or staff.

The MEAP was validated using a sample of 93 sheltered care settings in California, including 41 skilled nursing facilities, 28 residential care facilities, and 24 apartment facilities (Moos & Lemke, 1979). Norms are provided for all four subparts of the MEAP, each of which can be employed separately. Norms for the SCES are based on the responses of 3,064 residents and 976 staff members in 90 of the settings (Moos & Lemke, 1979). Clearly, then, the MEAP is a comprehensive, well-validated method for measuring institutional environments for the elderly.

The Effects of Relocation and Institutionalization

Since the early 1960's, gerontologists have been interested in studying the effects of an elderly person's moving into a nursing home, or the effects of relocating elderly people from one institution to another. Early research (for example, Lieberman, 1961) showed higher death rates for elderly subjects after moving to an institution. These increased mortality rates were attributed to relocation per se (Coffman, 1981). More recent evidence suggests that increased mortality is not typically the result of relocation

(Borup, 1981; Coffman, 1981). This latter conclusion has led to the search for person and/or environmental factors which mediate the impacts of relocation. Individual factors such as age, mental status, attitude toward relocation, and various personality characteristics (such as aggressiveness) have been shown to determine the impacts of relocation (Kowalski, 1981). Coffman (1981) reviews past relocation studies and concludes that new environments which provide adequate support for the elderly will prevent negative impacts of relocation. Schulz and Brenner (1977) argue that previous research on relocation effects can be explained by the factors of predictability and control. If the new environment is made more predictable, through provision of pre-relocation information, for example, the negative effects of relocation can be ameliorated. Similarly, if the individual can exact more control over the new environment than the old, positive rather than negative outcomes can be expected.

Institutionalization and voluntary relocation of the elderly have provided a framework for the study of person-environment interaction in the elderly. One of the important contributors to this area has been the work of Frances Carp, who has studied the effects of person-environment congruence on adaptation to new environments (Carp, 1967, 1968). Carp (1967) collected data on applicants for a public apartment facility designed for the elderly.

All applicants lived in either physically substandard housing or conditions of social isolation and stress. A little over one half of the applicants ultimately moved into the apartment complex. Followup data was collected one year after the new residents had moved into the apartment (Carp, 1968).

Carp's analysis of this data showed that all residents exhibited positive change on the followup attitudinal and behavioral measures (Carp, 1967). However, those residents who had been involved with some activities (limited by their previous living environments) before the move and who were able to participate to a greater extent in the same activities in the apartment complex showed greater change than those who did not participate in such activities before the move (Carp, 1968). Since the apartment complex staff held an "activity view of successful aging" (Carp, 1968, p. 185), there was a good person-environment fit for those who had been active before the move, and a poorer one for those who had not been active and who now found themselves in this activity-oriented environment.

In an eight-year followup study with most of the original residents, Carp (1974) found that the same variables which predicted adjustment after 12-18 months still did so after eight years. She also found support for a good person-environment fit with regard to activity leading to better adjustment (that is, more happiness and more acceptance among peers) after eight years than a poorer fit.

Carp's work illustrates a different method of studying person-environment interaction than those of Kahana, Lawton, and Nehrke. Carp begins by describing the environment, the salient feature of which is its emphasis on social and organizational activity. Given this, Carp seeks to determine to what extent participation in activities is important to the people entering that environment. This then forms the basis of her assessment of the goodness-of-fit between the person and the environment.

A similar method was employed by Turner, Tobin, and Lieberman (1972) in their study of institutional adaptation in the elderly. Turner et al. began with the assumption that the negative effects of relocation would be lessened by a good match between personality traits of the individual and the adaptive demands of the environment. As did Carp in her reports, Turner and her colleagues begin with an informal description of the nursing home under study:

Strong efforts are made by staff to keep residents engaged in activities and interactions; there is tolerance of complaining and individuality within the limits of institutional rules and regulations. Interaction, even if combative at times, becomes a criterion of adjustment; disengagement is seen as harmful. Residents quickly become aware of the reward system, attempting to define themselves as engaged (1972, p. 62).

Based on previous research, Turner et al. identified nine personality traits which they believed to be related

to adjustment. These were assessed in 85 elderly individuals on a waiting list for admission to the nursing home. One year later, adaptation was determined, and individuals were divided into two groups based on whether they showed extreme negative physical or mental changes (including death), or positive changes.

Turner et al.'s results showed that adaptation to this particular environment was related to activity and aggressiveness. "It is a style of being intrusive into the environment: of actively seeking interaction, [and] of aggressively relating.... At a more covert level, it suggests a narcissistic-hostile and controlling orientation toward the institutional environment" (1972, p. 67).¹

These studies by Carp and Turner et al. demonstrate an alternative method for studying person-environment interaction in the elderly. Although neither study attempted to measure the environment in objective terms, both studies demonstrate how person-environment interaction in the elderly can be studied fruitfully without measuring the two in the same terms.

¹Note the similarity between Turner et al.'s description of the institutional environment and Moos' SCES dimensions, and their description of the "ideal" personality and the type of descriptive data which could be generated from a Q-sort procedure or from the Adjective Check List.

Environmental Intervention Studies

One of the more recent trends in the gerontological literature has been an increasing interest in experimental studies of the institutionalized elderly. These studies have focused on interventions designed to increase the physical and psychological health and functioning of the residents. The interventions employed are related to environmental attributes which are presumed to be missing from an institutional setting.

One variable which has been examined is the amount of sensory stimulation received by the elderly nursing home resident. Ernst (Ernst, Beran, Safford, & Kleinhauz, 1978) has recently argued that the effects of living in an isolated environment can exacerbate the symptoms of organic brain syndrome. In a study of OBS patients, Ernst and his colleagues demonstrated improved mental functioning as a result of a sensory stimulation program (Ernst, Beran, Badash, Kosovsky, & Kleinhauz, 1977). Similarly, Mishara (1979) demonstrated improved neurological performance in elderly nursing home residents exposed to stimulation-oriented treatment environments as compared to a control group in the normal environment of the nursing home.

Lack of stimulation has also recently been implicated by Langer and her colleagues in the loss of ability to think and remember (Langer, Rodin, Beck, Weinman, & Spitzer, 1979). According to Langer et al., such abilities diminish

in individuals when placed in non-stimulating and non-challenging environments. Langer et al. (1979) found that memory could be improved in residents in such environments by increasing motivation and making the environment more demanding. They also found that subjects who were given responsibility for determining outcomes showed greater memory improvement than subjects who experienced the same outcomes, but who were not responsible for producing them.

Langer and Rodin (1976) have also demonstrated the importance of environmentally-induced responsibility and choice for nursing home residents. Residents who heard a speech emphasizing the amount of responsibility they had for their own care and how many choices they could make in their daily lives showed greater feelings of happiness and increased activity than a group which heard a speech emphasizing how much was done for them by the staff. In a followup study, Rodin and Langer (1977) were able to identify the continued effect of this experimental manipulation 18 months later.

Some of the most important research in this area has been the work of Richard Schulz. Using Seligman's (1975) theory of learned helplessness as a theoretical base, Schulz (1976) proposed that the perception of control and predictability of outcome was important for the psychological and physical well-being of the elderly. To study this, Schulz

provided visitors for elderly nursing home residents, and manipulated the degree to which residents could control and predict the visits. His results showed that residents who could predict and control visits scored higher on indicators of physical and psychological status than those who could not predict or control visits. A followup study (Schulz & Hanusa, 1978) showed that these positive impacts were reversed after the original study had been completed.

Another experimental study by Schulz (reported in Krantz & Schulz, 1980) was designed to test his previously-cited explanation of the effects of relocation (Schulz & Brenner, 1977). In this study, elderly individuals recently admitted to a nursing home were given either relevant, irrelevant, or no information about the facility. As predicted, both staff and the residents themselves reported increased physical and psychological functioning in the group which received the relevant information, designed to make the environment more predictable.

The results of these intervention studies suggest the importance of various environmental attributes in determining the physical and psychological well-being of elderly nursing home residents. The studies reviewed suggest that the resident should view the environment as stimulating, as fostering a sense of autonomy, and as providing for feelings of control, predictability, and responsibility, if positive outcomes are to be expected.

RATIONALE FOR THE PROPOSED INVESTIGATION

Statement of the Problem

As noted previously, three models of person-environment interaction in the elderly have been proposed by Kahana (and Nehrke), Lawton, and Moos. The only model which has been empirically tested to date has been the one proposed by Kahana, which is based on Stern and Pervin's ideas regarding person-environment fit. The present review suggests that the application of the concept of person-environment fit, along with its implication that the person and environment be measured in the same terms, results in a limited perspective. The review of the studies conducted by Carp and Turner et al. demonstrates the utility of other methods for studying person-environment interaction in the elderly. However, while Kahana's work is based on Murray's need-press theory, she does not use any of the accepted measures of these needs. The insistence that person and environment be measured in the same terms also precludes the use of a carefully developed and validated environmental assessment instrument such as the MEAP.

Lawton's model restricts the investigator of person-environment interaction in a different manner: the person is viewed in terms of physical and cognitive competence.

While these factors are undoubtedly important in the study of the elderly, Lawton's definition of the person in terms of competence ignores personality factors and other aspects of the individual. In addition, an empirical test of the model will remain difficult until the concepts of "competence" and "adaptation" can be clearly differentiated (see Lawton, 1977, p. 297).

The model proposed by Moos is the most recent and the most comprehensive of the three models. The model naturally conceives of the environment in terms of the four components of the MEAP. The person component of the model may consist of any conceptualization, since the model is an atheoretical one designed for the purpose of evaluating programs involving specialized environments for the elderly (Moos, 1980).

Moos' formulation is the only one which takes into account the results of the intervention studies of Schulz and Langer and Rodin. In Moos' model, environmental opportunities for control and choice are assessed using the POLIF. The model does not take into account residents' own perceptions of the degree of control and choice they feel they have over their own lives. This latter factor may in fact be a more critical determinant of outcomes than an objective assessment of the degree to which institutional policies and procedures allow for control and choice.

Finally, the inclusion of the arousal and adaptation components, while increasing the model's comprehensiveness,

make empirical validation difficult. Measuring these components would undoubtedly present problems, especially in residents who have lived in an environment for a relatively long time, and who have thus already adjusted as best they can to the environment's demands.

What would appear to be of utility to the study of person-environment interaction in the elderly is a model which incorporates all of the factors discussed previously. This model would be theoretically based and tied directly to specific measures of its components. These measures would be the most useful ones to suit the study of person-environment interaction, and would not depend on concerns of person-environment fit. The model would allow for the collection of descriptive data, and would incorporate the recent experimental findings of environmental intervention studies. Most importantly, the model should contain as few components as are necessary to explain the effects of person and environmental factors on outcomes. The elements which are included in the model should be capable of being easily measured, to allow for the necessary empirical validation of the model's proposed relationships.

The Proposed Person-Environment Model

The model of person-environment interaction in the elderly which will guide this investigation is presented in Figure 1. The model is based partly on theoretical concerns, partly on empirical findings, and partly on methodological considerations.

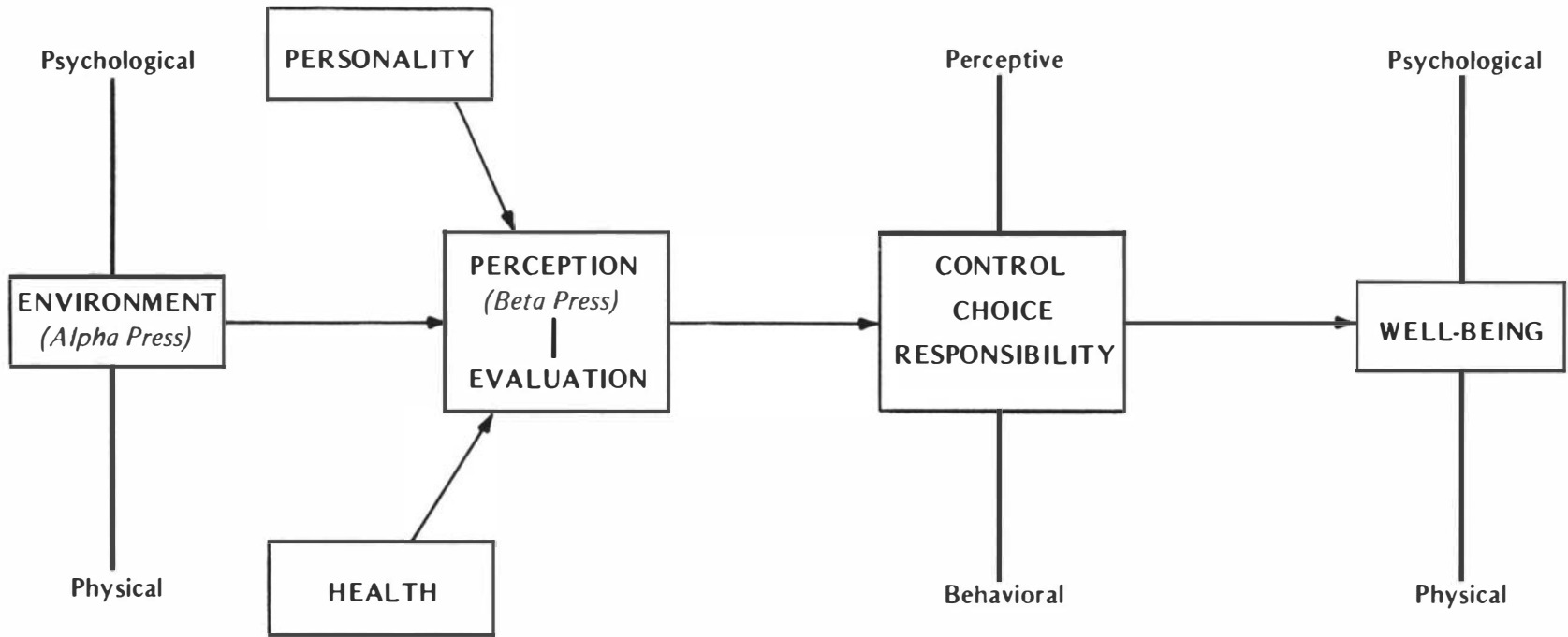


Figure 1. The Proposed Person-Environment Interaction Model

The first component of the model is the objective environment; that is, the environment as it actually exists (alpha press). Ideally, this would include physical characteristics of the environment (such as those measured by Moos' PAF) as well as psychological characteristics of the environment (such as those measured by the POLIF).

The next and most important component in the model involves two separate processes related to the person in interaction with the environment. First, there is the individual's perception of the objective environment (beta press). This again should include both the person's perception of the physical environment and his/her perception of the psychological environment. This perception sub-component represents the initial process which may prevent features of the actual environment from leading to positive outcomes. If these features are not perceived, or are perceived differently by the individual, then the outcomes will be affected.

The other aspect of the second component of the model is the evaluative process. This refers to the value that the individual places on a particular physical or psychological environment.

This evaluation process is truly indicative of the person-environment interaction. It cannot be assumed that the individual's perception of a given environmental quality

is synonymous with his/her evaluation of that quality. Agreement with the statement "residents have a lot of say about what goes on here" does not imply approval (or disapproval) of the content of the statement. Both the perception of some aspect of the environment and the evaluation of how desirable this aspect is to the resident must be known if outcomes are to be predicted. Moreover, the two components will interact to produce outcomes. When perceptions are consistent with evaluations, outcomes will be positive; if the two are inconsistent, negative outcomes will result.

This evaluative component is equivalent to Kahana's (1975) and Nehrke et al.'s (1979) assessments of preferences for environmental attributes. That is, asking residents if they prefer a given environmental component is the same as asking for their evaluation of that component. In the model proposed here, however, this evaluation component is considered as part of the perceptual process, and not as the measure of the "person" component. Two additional factors are seen as influencing the individual's perception and evaluation of the environment: health and personality characteristics.

Although it has not been mentioned to this point, health is a critical factor in any gerontological study. Although a review of relevant literature would be prohibitive, health has been shown to be a factor in virtually all areas

of functioning in the elderly, including the major outcome variable considered here, psychological well-being (see Larson, 1978). In the model proposed here, health is seen as influencing how the individual perceives and evaluates the environment, in addition to its direct effect on life satisfaction.

The other major determinant of the individual's interaction with the environment is personality. In this model, the individual's perception and evaluation of the environment are determined by personality characteristics.

The model allows for the exploration of those personality characteristics which determine residents' perception and evaluation of their environments. These characteristics, rather than evaluations of the environment, are viewed as representing the "person" component of the person-environment interaction.

As shown in Figure 1, health and personality factors are thought to influence both perceptions of the environment and evaluations of environmental characteristics. The influence of these person variables on perceptions of the environment will be evidenced in the relationship between the alpha and beta press. That is, health and personality factors will be implicated in residents' seeing their environments as being different from the way those environments actually are. Residents in poor health, for

example, might view the environment as more stimulating or challenging than it really is. In this example, differences between objective assessments of how stimulating the environment is (alpha press) and residents' perceptions of stimulation (beta press) would be attributable to individual differences in health.

Individual differences in personality and health factors will not only influence environmental perceptions, but will affect evaluations of environmental attributes as well. Residents who are relatively introverted, for example, would be likely to evaluate an environment which encouraged a great deal of social contact among residents negatively.

If characteristics of the objective environment are perceived accurately and evaluated positively by residents, and if health and personality influences do not disrupt these relationships, then the model predicts that the individual will feel stimulated by the environment, and perceive choice and control in his/her daily life. These latter properties will be evidenced behaviorally: for example, the individual will make many choices in a given day. In addition, the individual will also feel that (s)he can control and predict various aspects of the institutional environment. The ultimate outcome of these feelings, perceptions and behaviors will be physical and psychological well-being. The work of Schulz (1976) and Langer and Rodin

(1976) demonstrates that experimental interventions designed to increase perceptions of control and choice lead to increases in physical and psychological well-being. What is not clear, however, is the nature and extent of the relationship between life satisfaction and personal control and choice when assessed, without intervention, in elderly nursing home residents. In addition, the model presented in Figure 1 indicates that control and choice mediates the relationship between life satisfaction and the other variables in the model. This does not preclude the existence of direct relationships between these other variables and life satisfaction. The question of how these variables inter-relate is best resolved empirically.

This last point is true not only of the relationship between control and choice and life satisfaction, but of the other variables as well. That is, the model does not detail all of the relationships between variables which are theoretically possible. It is known, for example, that health is directly related to life satisfaction (see Larson, 1978). Thus an empirical test of this model may reveal relationships between components other than the relationships indicated in Figure 1.

Hypotheses

The relationships between the components of the proposed model shown in Figure 1 can be stated in the form

of testable hypotheses.

Hypothesis 1. Perceptions of personal control and choice will be positively related to well-being.

As noted previously, this hypothesis is based on the findings of intervention studies such as those conducted by Langer and Rodin and Schulz.

Hypothesis 2. There will be a positive relationship between perceptions of the environment and evaluations of the environment.

The perception and evaluation components of the model presented here are equivalent to the environment and person variables in previous studies of person-environment fit (eg, Kahana, 1975). The basic assumption of the person-environment fit studies is that people are most likely to be found in environments which are consistent with their personal characteristics (Kahana et al., 1980). Given this, consistency between these perceptions and evaluation of the environment should be evident.

Hypothesis 3. Residents' perceptions of the environment will be positively related to measures of the actual environment.

This hypothesis addresses the relationship between alpha and beta press. It is generally expected that residents will view their environments in a realistic and accurate manner. This is not to say, however, that there

may not be discrepancies between the actual environment and residents' perceptions of the environment.

Hypothesis 4. Residents' perceptions and evaluations of environmental attributes will interact to affect personal control and choice and life satisfaction.

This hypothesis represents the test of person-environment interaction as operationalized in previous research in this area. This hypothesis assumes that perceptions alone do not influence control and choice and life satisfaction. It is not until the interaction between these two is considered that their effect on these outcome variables will be apparent. Moreover, the nature of the interaction and its effects can be specified: consistency between perceptions and evaluations will lead to positive outcomes, while inconsistency will lead to negative outcomes.

Hypothesis 5. Differences in residents' evaluations of environmental qualities will be related to differences in physical health and/or personality characteristics.

In this hypothesis, the attempt is made to go beyond previous researchers' conceptualizations of the person in terms of stated preferences for environmental attributes (Kahana et al., 1980; Nehrke et al., 1979). Hypothesis 5 suggests that other factors (health and personality characteristics) will explain observed differences in evaluations of various aspects of the institutional environment.

Hypothesis 6. Any observed differences between the actual environment and residents' perceptions of it will be explained by individual differences in health or personality characteristics.

As the model depicted in Figure 1 shows, health and personality characteristics will influence perceptions of the institutional environment. Since the model presumes some actual, objective environment exists (alpha press), the influence of health and personality characteristics will be seen in the discrepancy between that actual environment and the one perceived by residents. That is, health and personality factors will explain residents' misperceptions of their environments.

These six hypotheses summarize the major relationships between the components of the model shown in Figure 1. By testing each of these hypotheses, an assessment of the individual links in the proposed theoretical model will be accomplished.

METHOD

Subjects

Residents. A total of 45 residents of three different nursing homes served as subjects in the present study. The nursing homes were all intermediate care facilities with approximately 150 residents in each. The facilities were located in urban and suburban communities in two major metropolitan areas in Virginia. Residents in all three settings were predominantly white females of lower-middle and middle socioeconomic backgrounds. The 45 residents who participated in the study were women, and all were mentally and physically healthy enough to complete the interview process.

One week after the interview, one of the women in Setting C died of amyotrophic lateral sclerosis, a degenerative muscle disease. Since it is known that the "terminal drop" phenomenon can affect cognitive functioning and personality (Riegel & Riegel, 1972), and since the subject died so soon after the interview, it was decided to exclude this subject from the analyses. The analyses were carried out with a total of 44 subjects: 15 in Setting A and Setting B, and 14 in Setting C.

Staff. A total of 121 staff persons participated in the study. Of these 121, 38 worked at Setting A, 49 at Setting B, and 34 at Setting C. At each home, the staff members who participated could be grouped into one of three functions: administrative staff (including administrators and supervisory

staff, social workers, and recreation staff), nurses (including RN's and LPN's), and nurse aides or assistants. Setting A and B included participants in all three categories, while in Setting C responses were available for administrative staff and nurses only.

Instruments

Model components. Life satisfaction of residents was assessed using Adams' (1969) revision of Neugarten, Havighurst and Tobin's (1961) Life Satisfaction Index (LSI). Adams' version excludes two items of the original 20-item index, which improves the psychometric properties of the instrument. Scores on the LSI can range from 0-18, with higher scores indicating greater satisfaction.

Perceptions of control and choice were assessed using 10 questions devised for this purpose by the researcher (see Appendix A). Each question was answered either "yes" or "no" by each resident. One point was given for each response in the direction of more control or choice. Thus scores could range from 0-10, with higher scores indication of greater control and choice.

Perceptions of the psychological environment (beta press) were assessed via Moos' SCES. Raw scores on each sub-scale were converted to standard scores using the norms for residents in skilled nursing facilities provided in the test manual (Moos & Lemke, 1979).

Assessments of the ideal nursing home environment were obtained from yes-no responses to seven questions

devised by the researcher (see Appendix B). Each of these questions corresponds to one of the seven SCES sub-scales. The wording of the questions was suggested by Moos' descriptions of the sub-scales, applied to the ideal nursing home.

Assessments of the objective psychological environment (alpha press) were obtained from staff members' responses to the SCES. Scores on each scale were converted to standard scores using Moos' norms for staff in skilled nursing facilities.

Personality measures were obtained from observer assessment of each resident on the ACL. Two ratings were obtained for each resident, then averaged to obtain the final score. The ACL was scored for Murray's 15 need scales. Total number of adjectives checked, and number of favorable and unfavorable adjectives checked were also recorded.

Assessments of health status were made by the interviewer for each resident (see Appendix C). These were ratings of functional status based on impressions gained from the interview. Scores could range from 0-9, with higher ratings indicating better health.

All instruments were computer scored using simple algorithms written by the researcher.

Background variables. The records of the residents were reviewed to obtain information for the following background variables: age, length of residence in the

nursing home, educational level (highest grade completed), marital status, and primary medical problem or diagnosis. As part of the interview procedure, information was obtained regarding the living arrangements of the resident prior to moving to the nursing home, and the resident's perception of who had made the decision that the resident would move to the nursing home.

Assessments were made of each resident's cooperativeness during the interview, and her understanding of the interview questions. These ratings were made by the interviewer on 7-point Likert scales (see Appendix C).

For staff members, background information consisted of age, sex, length of time employed at the home, and job title. This information was reported when the staff members completed the SCES and the ACL.

Procedure

Initial contact was made with the administrators in each of the three nursing homes. The purposes and procedures of the study were explained, and permission to conduct the study was obtained. An initial list of 20-25 residents who would be physically and mentally healthy enough to participate in the study was drawn up by the administrator. Contact was made with each resident first by someone from the home, who explained the nature of the study. If the resident agreed to the interview, she was then contacted by the interviewer, who either conducted the interview at that

time, or scheduled it for a later date.

At the outset of the interview, the interviewer explained that the purpose of the study was to determine if there was a relationship between what the nursing home was like and the well-being of the resident. The residents were told that they would be asked a series of questions about the home and themselves, that their individual responses would not be seen by anyone but the researcher, and that they were free to withdraw from the study at any time. If the resident agreed to be interviewed, her signature on a subject consent form was obtained (Appendix D).

The interview proceeded with the interviewer reading each question on each of the scales in turn to the resident, and recording their responses. Each question was read to all residents regardless of whether it was felt that some might have been able to complete questionnaires on their own. The interviews were conducted wherever the resident felt most comfortable. The attempt was made to complete the entire procedure in one sitting; if this was not possible, the interview was completed at a later time. Most of the interviews took 60-90 minutes, and were completed at one sitting.

This same procedure was followed for each resident in turn who had been identified on the preliminary list of the interviewer. When 15 interviews at the home had been

completed the procedure was ended, regardless of the number of names remaining on the list.

The procedures used with the staff members differed slightly between the three homes. In Settings A and B, the SCES was completed in a staff in-service training session, at which all staff participants were present. The purpose of the study was explained orally, and instructions for completing the scale were attached to it. The administrator of the third home preferred not to follow this procedure, so the SCES was completed by the staff members on an individual basis.

In all three homes, the ACL was completed individually by the staff people. It was found that the easiest procedure to use for determining which staff member would rate which resident was to have the administrator (or a knowledgeable staff member) assign residents to staff people. This was a fairly straightforward procedure, since most of the residents who participated, being more healthy and active, were known to most of the staff people. Once each resident had been assigned, the forms were distributed with the name of the resident who the staff person was to describe at the top of the instruction sheet.

Since the SCES and the ACL were not completed at the same time, it was not possible to get every staff person who completed the SCES to complete the ACL. Also, since staff anonymity was guaranteed and since the forms were completed individually, it was impossible to get a 100%

return rate, and to determine who had not returned questionnaires. In each home, therefore, the number of ACL's completed was fewer than the number of SCES scales completed.

For each of the 44 residents, it was possible to obtain ACL descriptions from two different staff persons. In a few cases, however, it was necessary to have the same staff member complete two ACL's on two different residents.

Problems with Data Collection

At various points in the process of collecting and analyzing the data, it became apparent that it would not be possible to test the model in the manner originally proposed. The main problem encountered was in trying to collect data regarding the physical aspects of the components of the model as shown in the upper portion of Figure 1. As data collection proceeded, it became increasingly clear that it would not be possible to collect data using the components of the MEAP other than the SCES. The testing of residents and staff, the assistance in matching residents and staff for the ACL descriptions, and the need to have some information collected from the records of the home all involved a considerable expenditure of time and energy on the part of the administrators and their staffs. Given this it did not seem reasonable to ask the administrator to spend an additional 2-4 hours completing the POLIF, or to obtain commitments from other administrative staff for the similar amount of time needed to complete the RESIF or the PAF. It was anticipated that such difficulties might be

encountered in collecting this data. It was originally proposed that concentration on the psychological components of the model might be more feasible, and this has been clearly borne out. Thus, the decision was made to deal strictly with the psychological components of Figure 1, and data was not collected on the physical aspects of the model components.

The other major problem encountered was with the measurement of the "evaluation" component of the model. Due to conditions which developed during the data collection phase, responses to the seven questions designed to assess residents' views of the ideal nursing home environment were not obtained from residents in Setting A. Thus, measures of all the model components are available for 29 of the 44 residents, and hypotheses involving the assessments of the ideal nursing home environment can be tested using the data from Setting B and C residents only.

This last problem results in one final discrepancy between the proposed data analysis procedures and those actually carried out. A path analysis was proposed in order to examine the relationships between the various components of the model. Since assessments of the ideal environment were available for only 29 residents, it is not possible to test the full model using path analysis. The problem here is that there are too many variables and too few subjects to test the relationships proposed. As an

alternative to the path analysis, it was decided to concentrate on the relationship between the ultimate outcome variable in the model, life satisfaction, and the other model components. This was accomplished using a hierarchical regression procedure, excluding the ideal nursing home ratings for all 44 residents. The details and results of this analysis are presented in the "Results" section of this report.

Data Analysis

The analysis of data for this research involved testing differences between settings and testing relationships among variables (i.e., testing specific hypotheses). The latter usually involved computing bivariate correlations or, when the relationship between several independent variables (such as *SCES* scale scores) and a dependent variable was examined, using multiple regression analysis. In the latter cases, the R^2 resulting from the regression analysis is reported to indicate the strength of the relationship, while the *F* value is used for significance testing. This procedure presents a problem when applied to the present data, however, since the number of cases is small relative to the number of independent variables included in the analyses. The R^2 value resulting from the multiple regression in such instances will be artificially inflated (Cohen & Cohen, 1975). To correct for this problem,

adjusted or "shrunken" R^2 values were computed (see Cohen & Cohen, 1975, pp. 106-107). Thus when multiple R or R^2 values are reported, they are these adjusted values.

For most variables, examining differences between settings involved conducting one-way analyses of variance (ANOVA's). When F ratios were significant, the ANOVA was followed by Duncan's Multiple Range Test ($\alpha = .05$) to determine which homes differed. Duncan's procedure was chosen since the concern here is with protecting against Type II errors (accepting the hypothesis of no differences between settings when it is false), and this procedure is the least conservative of the standard methods (see Winer, 1971, pp. 196-201).

This procedure was followed for testing differences between settings for the model variables. Scores on the SCES and ACL, however, presented the problem of conducting tests for several correlated dependent variables (seven for the SCES sub-scales and 15 for the ACL scales). If univariate tests alone were employed, the overall alpha level (probability of making a Type I error) would be inflated to an unacceptably high level. Multivariate analysis of variance (MANOVA) is a technique which allows for the examination of differences on all dependent variables simultaneously, thus controlling the overall alpha level. The procedure which was used for the SCES and ACL scales was to carry out the one-way MANOVA and, if the multivariate F ratio was significant ($p = .05$), conduct the univariate one-way ANOVA's to determine which scales differ (see Bock,

1975). The test statistic which was used in interpreting the MANOVA's is the Pillai-Bartlett V , since it has been shown to be the most powerful statistic and the most robust with regard to violations of assumptions of normality and homogeneity of covariance matrices (Olson, 1976). Values of V can range from 0 to 1, with larger values indicating a stronger relationship. The F test associated with the V statistic is always reported in the presentation of the results.

The analysis of the 15 need scales of the Adjective Check List is further complicated by the fact that the scales are highly intercorrelated. The ACL manual reports correlations between scales ranging from .72 to -.65. Given these high intercorrelations, several investigators have used factor analytic procedures to explore the structure of the ACL items. Parker and Veldman (1969) factor-analyzed the ACL responses of over 5,000 college students. These investigators identified seven factors, which they labeled social warmth, social abrasiveness, ego organization, introversion/extraversion, neurotic anxiety, individualism, and social attractiveness. These factors were subsequently used in an attempt to develop a new rating scale (Veldman & Parker, 1970).

Vidoni (1977) analyzed the ACL responses of over 1400 college freshmen, and was able to replicate five of the

factors identified by Parker and Veldman: social warmth, introversion-extraversion, remote anxiety, individualism, and social attractiveness. Scarr (1966) analyzed mothers' ACL ratings of their twin daughters, and identified three factors, which she labeled introversion-extraversion, social desirability, and effective intelligence.

In addition to these factor analyses of the ACL adjectives, Huba and Hamilton (1976) analyzed the inter-correlations between 12 of Murray's needs, as measured by five different procedures, including the ACL (the three needs not measured were deference, heterosexuality, and intraception). Using a correlation matrix derived by averaging the individual matrices from the different measures these investigators identified three factors, which were labeled achievement motivation, introversion/extraversion, and a generalized need for nurturance. The authors also showed that these three factors are identified when each of the measurement instruments, including the ACL, is analyzed separately.

These studies demonstrate the utility of factor analytic-type procedures in reducing the data provided by the ACL to a more manageable form, and in dealing with the problem of high intercorrelations among the need scales. The present study employs a principal components analysis to reduce the number of variables represented by the ACL

scales. Scores on the components identified from this analysis are then used, along with all 15 need scales, to test the applicable hypotheses. The details of this analysis are presented in the "Results" section of this report.

One final aspect of the data analysis which requires explanation is the use of staff ratings on the SCES. The procedure followed here was to compute the mean scores on each SCES scale for all staff members in each of the three settings. This means that each of the seven variables which represent staff ratings on the seven SCES scales takes on only three unique values, and that all subjects within a setting will share a single score on that variable. Given this, these scores can easily exhibit extremely high intercorrelations, since two variables are being compared over only three distinct data points. It is therefore not possible to include the staff ratings on all seven SCES scales in a single analysis (for example, a multiple regression analysis), as is required to test some of the hypotheses.

The approach taken here was to compute difference scores by subtracting, for each SCES subscale, the mean score of staff in a setting from the corresponding scale score of each resident in that setting. The resulting difference scores were highly correlated with the residents'

SCES ratings, but the former set of scores takes differences in the objective environment (alpha press) into account. These difference scores were used in place of residents' SCES scores in the tests of the relevant hypotheses.

These then are the general procedures which were followed in data analysis. Special procedures and specific details, if any, are presented prior to each analysis.

RESULTS

Background Variables

Residents. Table 1 presents the means for each home for the variables age, length of time in the home, and education level.² The last column of the table provides the F-values from the one-way analyses of variance (ANOVA's) carried out to test the differences between the means.

The mean age of the 44 residents in the sample was 80.0 years (SD = 7.4 years). Ages ranged from 60 to 96, with 11% of the residents 60-69 years old, 36% in the 70-79 range, 45% in the 80-89 year range, and three residents (7%) 90 years or older. As Table 1 shows, the mean ages of the residents in the three homes was significantly different. The post-hoc test of the differences between the means showed that residents in Setting B were significantly older than residents in either of the other two homes.

The 44 residents had lived in the nursing homes an average of 33.5 (SD = 24.1) months. The length of residence varied widely from 6 weeks to over nine years with the majority of residents living in the home for less than three years. Table 1 shows that although residents in

²In Table 1 and all other tables in this section, numbers in parentheses after mean scores are the standard deviations of scores for that variable.

Table 1
Residents' Mean Scores on
Selected Background Variables

<u>Variable</u>	<u>Setting A</u>	<u>Setting B</u>	<u>Setting C</u>	<u>F</u>
Age	76.5 (6.2)	84.1 (6.4)	79.4 (8.0)	4.66*
Length of Residence (months)	29.5 (13.6)	27.7 (18.1)	43.9 (37.2)	2.05
Educational Level ^a	7.1 (3.2)	8.6 (2.6)	9.4 (3.2)	2.02

*p < .05.

^aUnavailable for four residents.

Setting C had lived in that home an average of 15 months longer than residents in Settings A and B had lived in theirs, this difference was not statistically significant.

The residents in the sample had an average education level of 8.4 years (SD = 3.1). The education of the residents ranged from no formal education at all to some college education. The majority of the residents had not gone past the eighth grade. Table 1 shows that while residents in Setting C had averaged the most formal education, and residents in Setting A had the least, these differences were not statistically significant.

The vast majority of the women in the sample (84%) were widows. Eleven percent of the sample had never been married, and the remaining 5% were divorced. Although differences between the three homes could not be tested due to small cell sizes, inspection of the data shows that 75% of the women who had never been married were in Setting C. In addition, all 15 of the women in Setting B were widows.

Information on living arrangements prior to coming to the nursing home was available for 43 of the residents. The majority of the residents (56%) had lived by themselves at home prior to coming to the nursing home. Five of the residents (12%) had lived with their son or daughter, while seven (16%) had lived with some other relative. The

remaining seven had come to their present location from another nursing home or hospital. Combining the last three categories, there was no significant difference between the three homes in the proportion of residents who had lived on their own versus any other living arrangement, $\chi^2 (2) = 3.01, p > .10$.

Information regarding who had decided that the resident should move to the home was available for 42 of the 44 residents. Forty percent of the residents reported that they had made the decision to move on their own. For 28% of the residents, it was one of their children or grandchildren who made the decision, while another 14% reported that some other relative had made the decision. Finally, 17% reported that their physician had been instrumental in making the decision about moving to the home. Collapsing the four categories that involved decisions by others showed that only in Setting C did the majority of residents believe that they had decided to move to the home themselves. This difference just failed to reach statistical significance, $\chi^2 (2) = 5.24, p < .07$.

Primary medical diagnoses were obtained from the residents' records. The most frequent problem, diagnosed in 45% of the residents, was some form of heart disease or condition: arteriosclerotic cardiovascular disease (25%), cerebrovascular accident (18%), or hypertensive heart disease (2%). In addition, 14% of the sample had

arteriosclerosis listed as the primary problem, with another 4% diagnosed as hypertensive. Other diagnoses included arthritis (11%), broken hips (7%), diabetes (4%), and chronic brain syndrome (4%). In general, the problems of the residents were similar when comparing the three different nursing homes.

Table 2 shows the mean scores of residents in each setting on the scales measuring cooperativeness and understanding during the interview procedure. Residents of Setting C were seen as more cooperative and not understanding the interview questions as well as residents in the other two settings, but these differences were not statistically significant.

Staff. Of the 121 staff members who participated in the study, 32 (26%) were administrative staff, 49 (40%) were nurses, 34 (28%) were nurses aides, and six did not record their position. As noted previously, in Setting C no aides participated in the study. As a result, Setting C had a much greater proportion of administrative participants (43%) than either Setting A (19%) or Setting B (24%).

The vast majority (93%) of the staff participants were women. Men in Setting C made up a greater proportion of participants from that home (13%) than they did in Settings A (3%) and B (6%).

The means for the staff of each home for age and length of employment are shown in Table 3. Overall, the mean age of staff members was 35.5 years (SD = 11.2 years). The

Table 2
 Respondents' Cooperativeness and Understanding
 During Interview Procedure^a

<u>Item</u>	<u>Setting A</u>	<u>Setting B</u>	<u>Setting C</u>	<u>F</u>
Cooperativeness	6.1 (1.0)	5.3 (2.3)	6.5 (0.6)	2.46
Understanding	1.9 (1.2)	2.4 (2.2)	2.6 (1.4)	0.70

^aScores can range from 1 to 7. Higher scores indicate more cooperativeness; lower scores indicate greater understanding.

Table 3
Age and Length of Employment
of Staff Participants

<u>Variable</u>	<u>Setting A</u>	<u>Setting B</u>	<u>Setting C</u>	<u>F</u>
Age	35.8 (10.6)	37.5 (12.5)	33.2 (10.6)	1.24
Length of Employment (months)	19.6 (13.5)	39.7 (41.4)	31.6 (29.0)	4.22*

*p < .05.

average age of staff members did not differ significantly across the three settings.

The average length of employment of staff was about 2½ years (30.3 months; SD = 27.9 months). Table 3 shows that the settings differed significantly in the length of time staff members had been employed. Specifically, staff in Setting A had been employed for a significantly shorter period of time than staff in Setting B.

Model Components

Scores on the Life Satisfaction Index ranged from 2-18, with a mean score of 9.5 (SD = 3.5). Examination of the mean LSI scores for each home shows that Setting B residents reported being more satisfied (M = 10.8) than Setting A residents (M = 9.9), who in turn reported greater satisfaction than Setting C residents (M = 7.8). A one-way ANOVA showed that these differences barely fell short of statistical significance, $F(2,41) = 3.18, p = .052$.

Scores on the measure of control and choice ranged from 1-9. The mean score for the sample was 5.7 (SD = 1.6). The average scores of the residents in Settings A, B and C were virtually identical (5.7, 5.7 and 5.6 respectively).

Residents' scores on the seven SCES sub-scales are shown in Table 4. The one-way MANOVA showed that the differences between the three homes for the seven sub-scales were not statistically significant, $V = .27, F(14,72) = .80$.

Table 4
SCES Scores of Residents

<u>Scale</u>	<u>Setting A</u>	<u>Setting B</u>	<u>Setting C</u>
Cohesion	60.1 (23.2)	45.9 (21.5)	58.5 (20.4)
Conflict	62.5 (24.5)	71.1 (23.2)	66.1 (28.0)
Independence	50.6 (21.1)	43.5 (20.1)	60.8 (21.9)
Self-exploration	61.0 (16.5)	55.5 (20.4)	51.5 (19.7)
Organization	46.1 (20.7)	41.4 (21.5)	48.8 (16.0)
Resident Influence	64.1 (19.8)	61.1 (21.5)	63.1 (21.9)
Physical Comfort	50.1 (19.4)	47.2 (17.7)	53.6 (17.3)

Comparison of the means shown in Table 4 with Moos' normative sample does show some interesting differences. All three homes were rated higher on self-exploration, conflict and resident influence than the homes in Moos' normative sample. This difference was a full standard deviation in magnitude for the latter two sub-scales. All three homes in the sample scored below the normative mean for the organization sub-scale.

Objective assessments of the environment (alpha press) were supplied by staff SCES ratings of the nursing homes' environments on the SCES. These mean scores are provided in Table 5. A one-way MANOVA showed that the difference between staff ratings of the environments of the three homes was statistically significant, $V = .48$, $F(14,226) = 5.17$, $p < .001$. As the last column of Table 5 shows, the univariate tests of differences reached significance for five of the seven environmental dimensions: cohesion, independence, organization, resident influence, and physical comfort. For the first two, staff in Setting A rated that home significantly lower on cohesion and independence than staff in the other two settings. On the next two scales, staff in Setting A rated their home significantly lower than staff in Setting B on organization, and staff in Setting C on resident influence. So on four of the five significant sub-scales, Setting A scored below one or both of the other two settings. On the last scale, physical comfort, Setting C staff members scored that home

Table 5
Staff Members' Scores on SCES

<u>Scales</u>	<u>Setting A</u>	<u>Setting B</u>	<u>Setting C</u>	<u>F</u>
Cohesion	40.1 (27.5)	56.0 (16.9)	54.8 (14.3)	7.56**
Conflict	53.9 (19.1)	52.0 (17.4)	61.3 (17.5)	2.83
Independence	50.1 (23.6)	61.6 (22.7)	62.1 (18.2)	3.74*
Self-exploration	49.9 (23.2)	54.5 (19.1)	51.9 (23.0)	0.49
Organization	37.0 (22.7)	52.0 (16.7)	44.9 (14.9)	7.11**
Resident Influence	51.9 (22.5)	58.5 (16.9)	65.1 (22.1)	3.77*
Physical Comfort	51.0 (14.8)	55.4 (13.6)	39.3 (11.3)	14.80**

*p < .05.

**p < .01.

as less comfortable than both Setting A and B staff saw their homes.

Interviewer-ratings of residents' functional health status ranged from 1 to 9, with a mean of 5.2 (SD = 2.6). A one-way ANOVA showed highly significant differences between the mean health ratings of the residents in the three settings, $F(2,41) = 15.17, p < .001$. Residents in Setting B obtained significantly higher ratings ($M = 7.3$) on the functional health scale than Setting C residents ($M = 5.2$), who in turn obtained significantly higher scores than residents in Setting A ($M = 3.3$).

The ACL's completed by staff for each resident were scored for Murray's 15 need scales, as well as total number of adjectives checked, and number of favorable and unfavorable adjectives checked. Mean scores on these scales for the residents in each setting are shown in Table 6. Inspection of Table 6 shows that Setting A residents received much lower scores on almost all 15 need scales than Setting B and C residents. This difference was most apparent for scores on the need for affiliation, heterosexuality, intra-ception, achievement and nurturance sub-scales. The reason for these differences appears to lie in the discrepancy between the total number of adjectives checked. Setting A staff checked significantly fewer adjectives ($M = 19.3$) in describing residents than Setting B ($M = 52.2$) and Setting C ($M = 61.9$) staff, $F(2,41) = 16.03, p < .01$. Since each

Table 6
Staff Ratings of Residents on ACL Scales

<u>Scale</u>	<u>Setting A</u>	<u>Setting B</u>	<u>Setting C</u>
Total checked	19.3	52.2	61.9
# Favorable	7.5	24.6	24.2
# Unfavorable	4.3	11.3	6.5
Need for:			
Achievement	2.1	5.1	5.6
Dominance	2.8	6.3	6.1
Endurance	0.9	3.0	3.4
Order	1.1	2.8	2.8
Intraception	1.4	5.3	6.0
Nurturance	1.2	5.8	8.6
Affiliation	3.3	12.0	11.5
Heterosexuality	1.2	5.7	5.7
Exhibition	2.3	3.3	3.0
Autonomy	2.4	3.5	2.9
Aggression	0.3	-2.3	-2.7
Change	0.3	2.7	4.2
Succorance	0.3	1.6	1.2
Abasement	-1.7	-1.2	-0.7
Deference	-1.1	0.0	0.9

ACL Scale is scored by adding up the total number of indicative adjectives checked for that scale and subtracting the number of contra-indicative adjectives checked, scores on the scales vary directly with total number of adjectives checked. Checking very few adjectives makes each scale score less extreme, that is, closer to 0 (with no large positive or negative scores). As Table 6 shows, this is what happened in the case of Setting A.

The fact that Setting A raters checked relatively few adjectives does not necessarily mean that their ratings of the residents are invalid. One way to determine the validity of the Setting A ratings is to compare the patterning of the scale scores in this setting with that of the other two homes. In general, the rankings appear to be quite similar across the three settings. Residents in all three settings received their highest scores on the need for affiliation scale, and were also seen as having high need for dominance and need for intraception. At the other end of the rankings, residents in all three homes obtained their lowest scores on the same four need scales: aggression, succorance, abasement and deference.

The above analysis shows that the ACL ratings of residents in Setting A were consistent with those received by the residents in the other two settings, suggesting that the former are valid as assessed by this standard.

The differences in the variability of the ratings, however, indicates a probable violation of the assumption of homogeneity of covariance matrices which will be required for subsequent multivariate analyses. A chi-square test of homogeneity of covariance matrices confirmed that the matrices were not homogeneous, $\chi^2 (240) = 378.7, p < .001$. To solve this problem, a variance-stabilizing transformation (the logarithmic transformation) was applied to the ACL scores (see Weisberg, 1980, p. 124; Winer, 1971, p. 400). This was accomplished by adding a constant value of 100 to each scale score (to eliminate negative scores) and taking the common log of the resulting score. The chi-square test showed that these transformed scores did meet the homogeneity assumption, $\chi^2 (240) = 6.11, n.s.$ These transformed scores will be used in all subsequent analyses involving the ACL scales.

In addition to the need scale scores, it is of interest to note the responses to the ACL from a descriptive point of view. As Table 6 shows, staff used favorable adjectives much more often than unfavorable ones to describe residents. The adjectives used most frequently to describe residents, in order from more to less often checked, were: alert, friendly, appreciative, cheerful, kind, cooperative, capable, civilized, clear-thinking, good-natured, pleasant, affectionate, and dignified. The adjectives which were least frequently used to describe residents included: distractible, infantile, slipshod, unconventional, unintelligent, cowardly, foolish,

frivolous, queer, quitting, rattle-brained, reckless, self-denying, severe, submissive, undependable, and unscrupulous.

Responses to the seven questions regarding the ideal nursing home environment for 29 residents are shown in Table 7. In most cases, cell sizes were too small to test response differences between the residents of the two homes.

As the table shows, residents' assessments of the different environmental dimensions varied widely. Virtually all residents agreed that the ideal nursing home environment would be cohesive and physically comfortable, and the vast majority saw the ideal nursing home as being well-organized. There was, however, much less agreement on the other four dimensions. A sizeable proportion of the residents (nine of 29) did not see independence as a quality of the ideal nursing home. The majority of residents also saw self-exploration as a negative quality for a nursing home to have, although 41% saw this positively. Finally, the residents were even more divided in their assessments of resident influence and conflict, although more residents saw these elements as not being present in the ideal nursing home.

Relationships Between Background and Model Variables

Residents. The model guiding this study does not include background variables as components. It is of

Table 7
 Residents' Assessments of the
 Environment of the Ideal Nursing Home^a

<u>Sub-scale</u>	<u>Assessment^b</u>	
	<u>Positive</u>	<u>Negative</u>
Cohesion	93%	7%
Conflict	48%	52%
Independence	69%	31%
Self-exploration	41%	59%
Organization	86%	14%
Resident Influence	45%	55%
Physical Comfort	93%	7%

^a N = 29.

^b See Appendix B for exact wording of questions. A positive assessment indicates agreement with positively worded questions or disagreement with negatively worded ones.

interest, however, to determine whether scores on the model variables are affected by background characteristics of the residents.

Table 8 presents the results of a series of analyses exploring possible relationships between the background and model variables. For comparability, all of the entries in the table are correlation coefficients. For these analyses, previous living arrangement was dichotomized into "by self at home" versus all others, decision to move to the home into "self" versus all others, marital status into "widowed" versus all others, and primary medical problem into heart disease problems versus all others (hypertension and arteriosclerosis were included in the former category). For the ACL, the SCES, and the ideal environment questions, entries in the table are the adjusted or "shrunk" multiple correlation coefficients from the regression of each background variable on each set of scale scores.

As Table 8 shows, the nine background variables were not significantly related to scores on any of the model variables. Examination of the product-moment correlations for each separate SCES, ACL, and ideal environment scale with the background variables reveals 10 significant coefficients ($p < .05$) of a total of 261. Although this number would be expected by chance alone, it is of interest

Table 8
 Correlations Between Model and
 Background Variables for Residents

Background Variables	Model Variables					
	LS	Control	Ideal Env. ^a	SCES	Health	ACL
Age	.16	-.06	.00	.00	.09	.29
Time in Home	-.12	.17	.00	.00	-.12	.44
Education	-.15	-.16	.40	.00	-.19	.30
Previous Living Situation	.19	.19	.00	.00	.16	.22
Marital Status	-.24	-.07	.11	.00	-.05	.00
Medical Diagnosis	-.20	.06	.25	.00	.02	.00
Decision to Move	.00	.15	.00	.00	.03	.31
Cooperativeness	-.07	-.11	.27	.14	-.25	.00
Understanding	.17	-.17	.00	.36	.22	.00

Note. Entries for ideal environment, SCES, and ACL scales are adjusted multiple correlation coefficients. See text for further explanation.

^aN = 29.

to briefly discuss these relationships.

Three significant bivariate correlations involved the assessments by the Setting B and C residents of the ideal nursing home. Residents who believed the ideal nursing home would encourage independence tended to be better educated than residents who did not, ($r = .44$). Residents with heart problems were more likely to view the ideal nursing home as being low in self-exploration than residents with other medical problems, ($r = .50$). Finally, those few residents who did not think the ideal nursing home would be physically comfortable had lived in their home longer than other residents, ($r = .37$).

The remaining significant correlations all involved the ACL sub-scales. Four of these involved interviewer ratings of residents' cooperativeness: more cooperative residents had higher need for achievement ($r = .32$), need for dominance ($r = .34$), need for change ($r = .32$), and need for heterosexuality ($r = .31$) than less cooperative residents. Age was found to be positively related to need for abasement ($r = .33$) and negatively correlated with need for exhibition ($r = -.33$).

Staff. Staff ratings of the objective environment may be influenced by age and by length of time they have worked in the nursing home. To examine these possibilities, age and length of time employed were regressed on the seven SCES scales. The results showed that neither age ($R = .28$)

nor time employed ($R = .24$) was significantly related to ratings of the nursing home environments.

Of the 14 bivariate correlations coefficients, only one was significant: older staff members rated their homes as being more comfortable, $r(104) = .21, p < .05$. A second coefficient approached statistical significance: older staff members perceived less conflict than younger staff members, $r(104) = .19, p = .052$. Based on these results, it is reasonable to conclude that staff SCES ratings are not related to age and length of time employed in the nursing home.

Relationship Between Life Satisfaction and Model Variables

In order to examine the relationship between life satisfaction and the remaining components of the proposed model, a hierarchical regression analysis was carried out. As noted previously, assessments of the ideal nursing home environment could not be included in the analysis, since this data was not available for all residents.

Prior to conducting the regression analysis, it was desirable to reduce the 15 ACL scales into a smaller number of variables which would account for most of the variability in the original scales. This was accomplished, as previously stated, through the use of a principal components analysis. The correlation matrix for the 15 need scales was used to extract components.

The first two components generated by the analysis accounted for 78% of the variability in the ACL scale scores. None of the other components accounted for more than 9% of the variability in scale scores; thus, only the first two components were retained for further analysis. Both orthogonal (varimax) and oblique (promax) rotations failed to yield substantial improvement in simple structure: the initial (unrotated) component matrix was therefore used in subsequent analyses.

The results of the principal components analysis are shown in Table 9. The first component was identified as being an extraversion-introversion dimension. ACL scales which loaded high (and positive) on this factor include need for achievement, endurance, dominance, affiliation, order, and heterosexuality. Negative loadings were seen for need for abasement, succorance, aggression, and deference. A resident who scored high on this component (more extraverted) was described by staff as being energetic, capable, outgoing, persevering, methodical, pleasant, talkative, warm, and sociable. A resident who obtained a low score on this component (more introverted) was described by staff as shy, retiring, submissive, timid, and gentle.

The second component is seen as resulting from the use of staff ratings of residents' personality characteristics. This component has been labeled "Cooperativeness

Table 9
Component Matrix for ACL Need Scales

<u>Need Scale</u>	<u>Component</u>	
	<u>I</u> (Extraversion)	<u>II</u> (Cooperativeness with staff)
Achievement	.93	-.19
Dominance	.86	-.43
Endurance	.87	.08
Order	.80	.07
Intraception	.72	.58
Nurturance	.40	.87
Affiliation	.80	.48
Heterosexuality	.75	.39
Exhibition	.47	-.72
Autonomy	.38	-.85
Aggression	-.16	-.95
Change	.83	-.14
Succorance	-.21	-.14
Abasement	-.35	.84
Deference	-.14	.96
Eigenvalue	6.18	5.54
Variance accounted for	41.2%	36.9%

with Staff," and represents the tendency of staff members to rate residents in terms of how residents' behavior contributes to the ease or difficulty of the staff person's job duties (see Kahana & Coe, 1969, who demonstrate that staff views of nursing home residents are based on residents' conforming behavior and manageability).

High positive loadings were seen on this component for the need for deference, nurturance and abasement sub-scales. High negative loadings were seen for need for aggression, autonomy, and exhibition. Other scales which loaded negatively on this component included need for dominance, achievement, succorance, and change. Residents who scored high on the cooperativeness component were described by staff as being obliging, mannerly, timid, retiring, and kind. Residents described as quarrelsome, opinionated, arrogant, hard-headed, or a show-off would have obtained low scores on this component.³

Component scores for each resident on the extraversion and cooperativeness components replaced the 15 ACL need scales in the hierarchical regression analysis. Residents' SCES scores, after staff scores were adjusted for, were used as the measure of the environment. The remaining

³Examination of the correlations between scores on these two components and the remaining variables in the study showed that extraversion was positively associated with health, $r(44) = .48, p < .001$, and with ratings of residents' cooperativeness with the interviewer, $r(44) = .35, p < .01$. Cooperativeness with staff was not related to any of the other variables measured.

variables were health and perception of control and choice. The dependent variable in the analyses was life satisfaction.

These variables, in sets, were added to the regression equation hierarchically, from most to least immediate influence on life satisfaction (as suggested by the model shown in Figure 1). The first regression included perception of control only, the second added environmental variables, and the third included all variables, adding the health and personality variables).

The results of this hierarchical analysis are presented in Table 10. Perception of control and choice was a significant predictor, by itself, of life satisfaction. Once the other variables are included, however, the model no longer significantly predicts life satisfaction. In fact, examination of the adjusted R^2 values shows that adding variables to the model actually reduces the amount of variability in life satisfaction scores explained. In all three cases, only a small proportion of the variability in life satisfaction scores is explained by the remaining model variables.

With additional variables in the model, perception of control and choice is no longer a significant predictor of satisfaction. In fact, the individual tests of components showed that only perceptions of conflict in the environment were useful in predicting life satisfaction, $t = -2.27$,

Table 10

Results of Hierarchical Regression
 Analysis of Life Satisfaction Scores

<u>Variables Included</u>	<u>R²</u>	<u>R²(adjusted)</u>	<u>F</u>
Control	.09	.06	4.01*
Control, environment	.22	.04	1.21
Control, environment, health, personality	.27	.02	1.08

*p < .05.

$p < .05$. Greater levels of conflict perceived were associated with lower life satisfaction scores. No other variable was found to be a significant predictor of life satisfaction.

Tests of Hypotheses

Having examined the relationships between the background variables and the model components and life satisfaction and the other model components, this section reports the results of the tests of the hypothesized relationships between the various model components. All of the probability values reported in this section are for one-tailed (directional) tests.

The first hypothesis indicates that there should be a positive relationship between perceptions of control and choice and life satisfaction. Product-moment correlations between scores on the control and choice measure and scores on the LSI support this hypothesis, $r = .29$, $p < .05$. This is a fairly low correlation, however, indicating that less than 9% of the variability in LSI scores can be accounted for by control and choice scores. Moreover, analysis of the three settings separately shows that the relationship between the two variables varies considerably. Specifically, scores on the two scales are rather highly correlated for Setting A residents ($r = .49$, $p < .05$), but show much lower correlations in Setting B ($r = .20$) and Setting C ($r = .10$). These differences are likely due to the greater

variability of LSI and control and choice scores in Setting A (SD's = 3.99 and 1.84, respectively) compared with Setting B (SD's = 3.10 and 1.79) and Setting C (SD's = 2.61 and 1.39).

Hypothesis 2 suggests that there should be a positive relationship between the residents' assessments of the ideal nursing home environment and their perceptions of their own home's environment on that same dimension. To examine this hypothesis, point-biserial correlations were computed between responses to each of the ideal nursing home questions and scores on the corresponding SCES sub-scale for the 29 residents for whom data were available. Of the resulting seven correlation coefficients, six were in the opposite direction from the one predicted. The seventh, organization, was non-significant ($r = .24$). The relationship between assessments of the ideal environment and the residents' own environments was not a positive one.

Hypothesis 3 addresses the degree to which residents' perceptions of the environment differ from staff assessments of the environment. In order to examine these differences, separate one-way MANOVA's were carried out for the three homes on the seven sub-scales, followed by univariate t-tests between staff and resident mean scores on each sub-scale. These results are presented in Table 11 which, for ease of comparison, repeats the mean scores presented

Table 11

Comparison of Staff and Resident SCES Scores

Scale	Setting A			Setting B			Setting C		
	Resident	Staff	t	Resident	Staff	t	Resident	Staff	t
Cohesion	60.1	40.1	2.48*	45.9	56.0	-1.89	58.5	54.8	0.71
Conflict	62.5	53.9	1.37	71.1	52.0	3.43	66.1	61.3	0.59
Independence	50.6	50.1	0.07	43.5	61.6	-2.77	60.8	62.1	-0.21
Self-exploration	61.0	49.9	1.69	55.5	54.5	0.17	51.5	51.9	-0.05
Organization	46.1	37.0	1.35	41.4	52.0	-2.00	48.8	44.9	0.80
Resident influence	64.1	51.9	1.84	61.1	58.5	0.48	63.1	65.1	-0.28
Physical comfort	50.1	51.0	-0.19	47.2	55.4	-1.89	53.6	39.3	2.85*

*p < .05.

in Tables 4 and 5.

The one-way MANOVA's showed that the overall staff-resident differences were significant for Setting A, $V = .26$, $F(7,45) = 2.24$, $p < .05$, and Setting C, $V = .35$, $F(7,40) = 3.09$, $p < .05$. Differences between staff and residents in home B were not significant.

Although the multivariate tests were significant for Settings A and C, univariate tests showed significant differences on only one of the seven components in each home. In Setting A, residents reported significantly higher levels of cohesion than staff. Setting C staff and residents differed in their assessments of physical comfort, with staff seeing the home as significantly lower than residents.

Hypothesis 4 involves testing the relationship between life satisfaction and control, perception of the nursing home environment, and feelings regarding the ideal nursing home environment. The hypothesis maintains that the relationship between perceptions of what the environment is like and positive outcomes is moderated by beliefs about what the environment should be like. This hypothesis can only be tested for the 29 Setting B and C residents.

To confirm this hypothesis, it is first necessary to show that residents' SCES scale scores are not directly related to feelings of control or to life satisfaction. Product-moment correlations between the SCES scales and scores on the control measure ranged from $-.33$ to $.23$;

none were statistically significant. Correlations between LSI and SCES scores ranged from $-.12$ to $.12$; again, none were significant. The adjusted R^2 from the regression of control scores on the SCES scales was $.04$, while the regression of LSI scores on the SCES scale scores yielded an adjusted R^2 of $.00$. Clearly, there is no direct relationship between perceptions of the environment and feelings of control or life satisfaction for the 29 residents.⁴

If Hypothesis 4 were re-stated in analysis of variance terms, we would predict a significant interaction between scores on each SCES scale and responses to the corresponding question regarding the ideal nursing home, when life satisfaction and control are the dependent variables (main effects for the two independent variables would be non-significant). That is, the nature of the relationship between, say, life satisfaction and scores on the organization SCES sub-scale depends upon whether the resident agreed or disagreed that the ideal nursing home should be highly organized.

According to Cohen and Cohen (1975), the interaction between a dichotomous independent variable (responses to each ideal question) and a continuous independent variable (scores on each SCES sub-scale) is "contained in" the product of the two. The test of the significance of the interaction involves a hierarchical multiple regression

⁴This is true for the entire sample as well. Adjusted R^2 values for the regression of control and life satisfaction scores on SCES scales were both $.00$.

procedure, in which variability due to the two single variables is removed prior to entering their interaction into the model (1975, pp. 301-310). It has already been shown that SCES scale scores are not directly related to control or life satisfaction. If the interaction between a SCES scale score and the response to the corresponding ideal scale question explains a significant proportion of the variability in life satisfaction or control scores beyond that already explained by each variable separately, then Hypothesis 5 will be confirmed.

The above analysis was carried out for each SCES scale separately, using first control scores as the dependent variable, then life satisfaction scores. The results of the former set of analyses revealed no significant relationships between any of the scale scores and the control scores; these results are therefore not presented here.

Table 12 shows the results of the analyses using life satisfaction as the dependent variable. The table shows first the adjusted R^2 value from the main effects model; that is, the model including residents' scores on each SCES scale and their responses to the corresponding ideal question. The next column shows the R^2 value from the interaction model; that is, the one containing the two main effects and their product. The F values presented in the last column correspond to the sums of squares for the addition of the interaction terms, and are used to test

Table 12

Regression of Life Satisfaction on Each SCES Scale,
Ideal Question, and their Interaction^a

<u>SCES Scale</u>	<u>R²</u> <u>(Main Effects Model)</u>	<u>R²</u> <u>(Interaction Model)</u>	<u>F</u>
Cohesion	.00	.00	0.39
Conflict	.00	.16	6.92*
Independence	.00	.00	2.43
Self-exploration	.00	.18	8.28*
Organization	.10	.21	4.88*
Resident Influence	.00	.00	0.06
Physical Comfort	.00	.10	4.95*

*p < .05.

^aN = 29.

the usefulness of adding the interactions, given that the two main effect variables are already in the model. These are not the F-values for the test of the usefulness of the entire model. Examination of these latter F values shows that the self-exploration variables ($F = 3.06$, $p < .05$) and the organization variables ($F = 3.53$, $p < .05$) were each useful in explaining the variability in life satisfaction ratings.

As Table 12 shows, the F-tests for the addition of the interaction terms were significant for four of the seven SCES sub-scales: conflict, self-exploration, organization, and physical comfort. In each of these cases, the R^2 value for the model with the interaction term included is significantly greater than the one obtained without the interaction term.

The results of these analyses show that for these four dimensions, the relationship between perception of the nursing home environment and life satisfaction is dependent upon the residents' beliefs about what the nursing home environment should be like. For example, for residents who believe that the ideal nursing home should have some degree of organization, perceptions of organization in their own environments are positively related to life satisfaction. However, for residents who do not believe organization is positive, the more organization they see in their own environment, the lower their

self-reported life satisfaction. Thus Hypothesis 4 is confirmed for four of the seven SCES sub-scales.

These findings suggest an additional question of interest: why do some residents hold one view of the ideal nursing home while others hold the opposite view? Hypothesis 5 states that individual differences in these attitudes toward the ideal nursing home will be related to health and/or personality variables. To examine this hypothesis, t-tests were carried out between the mean health ratings of residents who agreed with each of the ideal questions versus the ratings of those who disagreed. In addition, MANOVA's were computed to test differences between these two groups on the ACL scales, and t-tests were conducted between the groups' scores on the extraversion and cooperativeness scales obtained from the principal components analysis of the ACL scale scores. Since so few residents believed that the ideal nursing home should be low on organization (N=4) or physical comfort (N=2), differences could not be tested for these two scales.

The results of the analyses showed no personality differences between respondents who viewed the ideal nursing home differently in terms of conflict, $V = .36$, $F(15,13) = 0.49$ or self-exploration, $V = .22$, $F(15,13) = 0.25$. The analyses of the component scores also failed

to reveal significant group differences. In addition, health was not significantly related to responses to the questions regarding self-exploration, $t(27) = 0.44$, or conflict, $t(27) = 1.65$, in the ideal nursing home.

Inspection of the health and personality ratings of residents who differed in response to the questions regarding the ideal nursing home's organization and physical comfort showed no differences between the respondents. In addition, the previous analysis of the background variables showed only one significant relationship between a background variable and responses to a question regarding the ideal nursing home. Residents who thought that the ideal nursing home should not encourage self-exploration were more likely to have a heart-related medical problem than residents who saw self-exploration more positively, $\chi^2(1) = 7.13$, $p < .01$. Thus residents' different views about the ideal nursing home cannot be attributed in a systematic way to health or personality differences, nor to differences on any other variables examined in the present context.

Hypothesis 6 states that differences between the actual environment (that is, staff scores on the SCES scales) and residents' perceptions of the environment will be related to individual differences in health and personality. To explore this possibility, a staff-resident

discrepancy score for each SCES scale was computed by subtracting the mean staff rating in each setting from the score of each resident in that setting. The resulting score represents the size and direction of the discrepancy, with smaller (negative) scores indicating residents perceiving less of an attribute than staff (negative discrepancy) and larger (positive) scores indicating residents perceiving more of a characteristic than staff (positive discrepancy). These scores were then correlated with health ratings, regressed on the ACL need scales, and correlated with scores on the extraversion and cooperativeness components.

The results of these analyses showed that none of the SCES staff-resident discrepancy scores was related to scores on the ACL scales (adjusted R^2 values ranged from .00 to .16). Correlations with the ACL component scores ranged from .19 to $-.28$; none were significant. The regression of health ratings on the seven SCES discrepancy scores also failed to reach significance, $F(7,36) = 1.54$ ($R^2 = .08$). These findings show that differences between staff and residents' perceptions of their institutional environments were not related to individual differences in resident health and personality.

DISCUSSION

Methodological Issues

There are several issues related to the methods employed in the present study which should be considered in evaluating the results obtained. Three considerations are relevant here: the sample sizes employed, factors unique to the settings used here, and issues related to the measures used to assess the various components of the model.

The sample size of 44 used in this study is a relatively small number of subjects. Many of the statistical analyses used here, such as the regression analyses, normally involve larger numbers of subjects. One effect of the smaller samples is a loss of statistical power; that is, the ability to detect significance given various effect sizes. With only 44 subjects, effects must be relatively large in order to be statistically significant.

Although all of the tests of hypotheses suffer from decreased power, due to small sample sizes, this is especially true of those hypotheses regarding the ideal nursing home (Hypotheses 2 and 4). Only 29 subjects were available for the analyses of these hypotheses. With so few subjects, very large effects would be needed in order to obtain significance at an alpha level of .05. This factor may contribute to the failure to confirm some of the hypotheses of the present study.

There is one additional factor which relates to the issue of sample size. Scores on the SCES showed that there was great variability in resident and staff perceptions of their settings' environments. The procedure used for hypothesis testing in the present study involved combining scores from all three settings. Some useful information regarding variability in the settings' environments is necessarily lost by this process. Ideally, hypotheses would be tested for each setting separately. This would allow for exploration of how the proposed relationships between variables differ across settings. With only 14 or 15 subjects per setting, however, the present study did not permit such comparisons.

The second methodological issue relates to unique situations encountered in the nursing homes sampled. As noted previously, administrative staff were over-represented in Setting C, as compared with the other two settings. This may have altered overall staff assessments of the environment in this setting, since different staff are likely to have different perceptions.

A different type of situation arose with regard to staff in Setting A. For several months prior to the start of data collection, Setting A had been having some problems regarding the unionization of some of its employees. There was a fair amount of controversy and tension generated

among staff holding different positions on this issue. Presumably, the SCES is a sensitive enough measuring device to reflect this staff disharmony.

Both of the issues in these two settings have implications for the test of the third hypothesis, which compared staff and residents' perceptions of their environments. The results of this comparison showed that staff in Setting A scored significantly lower than residents on the cohesion scale, while staff in Setting C scored significantly lower than residents on the physical comfort dimensions. The former difference may be due to the union problems in Setting A, which could be expected to lower staff perceptions of cohesiveness. Similarly, the staff-resident difference observed in Setting C may be attributed to the disproportionate number of administrative staff who completed the SCES. Since many of these people may not work or have offices in the same places that residents live, it is possible that they are assessing physical areas of the home which are different from those which residents used as their point of reference.

The final methodological issue which may, to some extent, account for the results obtained is the method by which the various components of the theoretical model were operationalized and measured. For every component of the model, the choice regarding its measurement may have

influenced the findings regarding that model element.

The ultimate outcome variable in the model is life satisfaction, as measured by a modified version of the Life Satisfaction Index. The reliability and internal consistency of the LSI when used with institutionalized elderly samples has been demonstrated to be high (Turner et al., 1979). What may be questioned, however, is the use of a global measure of satisfaction with life as an outcome variable in research on person-environment interaction. Parr (1980) has recently suggested that direct observations of behavior or evaluations of the appropriateness of behavior are more satisfactory measures of outcome in person-environment research than generalized measures of life satisfaction. Although it could be argued that feelings and attitudes are as important as behaviors, it may be that using a global outcome measure like the LSI would limit the possibility of discovering the influences of other components. One alternative would be to adopt a multi-dimensional view of life satisfaction and measure satisfaction with various components, such as place of residence, relationships and health (see Cutler, 1979).

Perceptions of control and choice were measured using ten questions developed for this study. The questions used were generally related more to the past than the present: for example, how much choice the resident had regarding

whether or not to move to the nursing home. Thus, these questions might not have been a good measure of current feelings of control and choice.

Standardized instruments for measuring control and choice have been developed by gerontologists. Hulicka, Morganti, and Cataldo (1975) have introduced an "Importance, Locus and Range of Activities Checklist" which asks subjects to rate 40 activities for degree of personal choice and perceived importance. Reid, Ziegler, Sangster, Haas-Hawkings and Riusech (1979) have offered a "Desired Control Measure," on which subjects rate 35 activities in terms of how important they are to them and the degree to which the person can carry out the particular activity. The use of one of these measures might have provided a more accurate assessment of this component of the model.

Resident and staff perceptions of the institutional environment were obtained using Moos' SCES. Moos views the seven SCES sub-scales as measuring separate components of the environment (Moos and Lemke, 1979), and thus does not provide any method for combining scale scores. This can represent a problem when scale scores are being used in statistical analyses, since the scales are intercorrelated (Moos and Lemke, 1979, report coefficients ranging from $-.45$ to $.59$). This multicollinearity especially affects the multivariate analyses of variance in which the SCES

scale scores appear as the dependent variables. Specifically, correlations among the dependent variables can produce an analysis in which the multivariate F-test shows significant group differences, but none or few of the univariate tests are significant (Bray and Maxwell, 1979). This is precisely the result observed in the MANOVA's of resident and staff SCES scores used to test the third hypothesis. The multivariate F-tests were significant in Settings A and C, but only one of the seven sub-scales showed significant differences when the univariate tests were applied. Thus, the overall significant results in the MANOVA's testing Hypothesis 3 may result from the intercorrelation of the SCES scales, and not true differences between resident and staff SCES scores.

Feelings about the ideal nursing home were assessed using seven individual items, each representing one of the components of the environment measured by the SCES sub-scales. By condensing the SCES items (in ideal form) down to seven questions, several difficulties may have been introduced. It may have been that the wording of the items failed to accurately reflect the nature of each of the corresponding sub-scales. Alternately, the dichotomous response alternatives may have limited the power of the statistical comparisons between the real and ideal environments. Moos' Form I of the SCES is an exact parallel of

the SCES, but with the phrasing of the items changed to correspond to an ideal nursing home environment. Had this form been used in the present study, the hypothesized relationship between the real and ideal environments might have been put to a more accurate test.

The health component of the theoretical model was measured using an interviewer assessment of functional health status. These judgements were subjectively arrived at, based on a single contact with the resident, and may not be entirely accurate. Perhaps more extended observation or ratings by staff members would have resulted in more accurate health assessments. Another possibility is that rather than functional health status, some other conceptualization of physical health may have provided a more useful measure of this component. The literature on life satisfaction has shown that self-reported health is a better predictor of satisfaction than other more objective measures (see Larson, 1978). This is especially relevant with regard to Hypothesis 5, which sought to relate physical health to beliefs about the ideal nursing home environment. Beliefs about the ideal environment might be more closely related to self-assessments of physical health than to observer ratings.

There is some evidence in the present study that a different measure of health might have been more closely related to environmental preferences. In the analysis of the resident background variables, primary medical problem,

where dichotomized into heart ailments versus all other problems, was found to be significantly related to preferences for self-exploration in the nursing home environment. This dichotomy of primary medical problem into heart versus all others was intended to express a difference in the severity of residents' medical problems. The assumption here was that problems such as previous heart attacks or cardiovascular disease were more serious or severe than problems such as arthritis and diabetes. Although conclusions cannot be based on this single observed relationship, this does suggest that a measure of health based on severity of medical problems might have been a useful measure of the health component of the model.

Finally, the Adjective Checklist was used to measure the personality component of the model. Although the ACL is a widely used measure of some of the needs proposed by Murray (1938), questions regarding its validity have been raised in the literature. Wohl and Palmer (1970), for example, found little correspondence between ACL scale scores and needs as measured by the Edwards Personal Preference Schedule (EPPS), leading these investigators to conclude that the two instruments were not measuring the same concepts. Megargee and Parker (1968) reached the same conclusion regarding the ACL, the EPPS, and the Thematic Apperception Test.

In the present study, the main difficulty encountered with the ACL was the great variability in the total number

of words checked by the respondents. Although Gough and Heilbrun (1965) do provide tables for standardizing ACL scale scores based on number of adjectives checked, the range of words covered by each table (for example, one to 75) was too broad to be of use here. Scale scores are directly related to total number of words checked, and this results in differences in response styles determining scores on the need scales. Thus, although the ACL did seem to be particularly suited to the needs of the present study, problems with the scale may have contributed to the failure to show relationships between the need scales and the other variables considered.

Another aspect of the operationalization of the personality component of the model is the use of observer (staff) ratings, as opposed to obtaining checklists from the residents themselves. Potential problems with the use of observer ratings have been discussed in the literature on psychological testing. Anastasi (1976), for example, discusses several sources of difficulty associated with the use of observer ratings (see pp. 609-612). When presented with a list of words such as those of the ACL, different observers may have different ideas about what each word actually means. This will result in observed differences due to factors other than true personality differences among residents.

Another condition cited by Anastasi as affecting the validity of observer ratings is the extent of the raters' "relevant acquaintance" with the person to be rated (1976, p. 610). Although the procedures of the present study were designed to ensure that staff members knew and worked with the residents they rated, it is always possible that differences in how well residents were known to staff resulted in differences in ratings.

The last factor is what Anastasi terms the "leniency error" (p. 611). In the current context, the leniency error refers to the fact that many staff members tend to be reluctant to check unfavorable adjectives when describing residents. This was, in fact, observed to be true of all three settings in the present study. This results in ratings which have less power to discriminate between individuals.

Clearly, then, the use of observer ratings introduces questions regarding the validity of the personality assessments. Obtaining ACL's from residents in the present study would not have been practical, however, given the length of time needed to administer the remaining scales. Moreover, self-reports have their own set of difficulties associated with them as well (such as faking and response sets; see Anastasi, 1976, pp. 515-521). Thus any problems encountered in the present study are indicative of the more general issue of the accuracy of personality reports, whether they

are self-reports or observer reports.

These, then, are the methodological issues which may have influenced the tests of the hypotheses in the present study. In any study which attempts to operationalize and test components of a theoretical model in institutional settings, there will invariably be concerns relating to measurement and data collection procedures. Although the factors detailed in this section may have influenced the tests of hypotheses, they are not offered as explanations for the findings. Theoretical issues and empirical results are more appropriate contexts within which to interpret the present findings.

Life Satisfaction and Model Components

The hierarchical regression analysis of the impacts of the model variables on life satisfaction showed that these variables, as a whole and individually, were not very useful in explaining the variability in life satisfaction scores (with the exception of perception of control and choice, discussed in the next section). One reason for this is undoubtedly related to some of the methodological issues raised in the previous section, such as the measurement of perceptions of control and choice or the correlations between the SCES sub-scales. Even with these issues considered, however, it would be expected that the variables included in the model could explain more of the variance in life satisfaction scores than they did.

It should be noted that the variables included in these regression analyses do not represent all of the factors of the proposed theoretical model. Specifically, the regression analyses excluded the assessments of the ideal nursing home environment. This component is an important one, however, since it is the interaction between perception and evaluation which is expected to influence life satisfaction. Thus, the failure to include this component may account, in part, for the inability to successfully predict life satisfaction.

The remaining explanation for the failure of the hierarchical procedure to predict life satisfaction scores relates to the ability of any model to be able to accomplish this. Given the current state of knowledge in gerontology regarding the relationships between the variables included here, proposing any type of hierarchy of influence among them may be premature. One could argue, for example, that life satisfaction influences nursing home residents' views of their environment, rather than the reverse. It may be that much more research examining the relationships between pairs or sets of these variables (as well as other variables not included here) is required before statements regarding degree and direction of influence can be made. The tests of the individual hypotheses accomplish this, and allow a determination of where the faulty assumptions of the overall model may lie.

Tests of Hypotheses

The hypotheses proposed and tested in this study examined the relationships between various elements of a theoretical model of person-environment interaction in elderly nursing home residents. The proposed model views residents' life satisfaction as the ultimate outcome variable. Feelings of personal control and personal choice are seen as intervening between life satisfaction and the other components of the model. At the environmental level, the model suggests an interaction between residents' perceptions of various aspects of the environment, and their evaluations of (or preferences for) those aspects. Environmental perceptions are influenced by three additional factors: characteristics of the actual environment (alpha press), residents' health, and personality factors.

The first hypothesis predicted a positive relationship between life satisfaction and perceptions of personal control and personal choice. This hypothesis was confirmed, but the correlation showed that only about 9% of the variation in life satisfaction scores could be explained by scores on the personal choice measure.

One of the contributions of the proposed model is the incorporation of perceptions of personal control and choice as an intervening variable in the relationship between person-environment interaction and life satisfaction.

The inclusion of this variable in the model allowed for testing its importance as a mediator of life satisfaction.

The initial findings of intervention studies designed to increase perceptions of personal control and choice (Langer & Rodin, 1976, Schulz, 1976) were quite positive. Correlational studies, however, have shown that the strength of the relationship between life satisfaction and perception of control and choice is not much greater than the .29 correlation obtained in the present study. Morganti, Nehrke, and Hulicka (1980) found a correlation of .31 between scores on the choice component of their latitude of choice scale and scores on the LSI. Using the same choice measure, Elias, Phillips, and Wright (1980) found a correlation of .38 with the Philadelphia Geriatric Center Morale Scale. Reid and Ziegler (1980), in two separate studies, found an average correlation of .37 between their Desired Control Measure and scores on the LSI. Thus, the relatively weak relationship between life satisfaction and perceived control observed in the present sample is consistent with that of previous studies.

One explanation for this apparent discrepancy between the findings of intervention studies of control and correlational studies relates to the assumed universality of the former set of findings. Some reviewers, for example, have suggested that the results of intervention studies show that

a sense of control is essential to the well-being of all nursing home residents (Noelker, Parmelee & Poulshock, 1980). Subsequent research, however, strongly suggests that the effects of interventions are not the same for all elderly nursing home residents.

Schulz and Hanusa (1978), in their followup of subjects from Schulz's (1976) intervention study, found no evidence of long-term benefits from their intervention. In contrasting their study with Rodin and Langer's (1977) follow-up study, which did show evidence of positive long-term effects, Schulz and Hanusa (1978) argue that the effects of interventions are related to attributions made by subjects regarding the changes instituted. Positive long-term effects will be seen in those subjects who make internal, stable and global attributions regarding the changes brought about by the intervention. External, unstable and specific attributions will not result in long-term benefits. Thus, the impacts of control and choice-enhancing interventions are subject to mediation by individual differences in making attributions.

Schulz and Hanusa (1980) have recently suggested that individual differences in expectations for control and choice may also affect the relationship between perceived control and well-being. According to this argument, nursing home residents adapt to their environments over a period of

time by changing their expectations for control. Intervention studies present temporary and externally-induced changes in levels of control and choice, which lead to positive or negative impacts on well-being. Without such temporary changes, however, expectations remain stable, and no relationship between control and well-being will be evidenced. It is for this reason that studies such as the present one will not find very strong relationships between these two sets of variables (Schulz & Hanusa, 1980). This argument, along with the weak relationship observed in the test of Hypothesis 1, suggests that feelings of personal control and personal choice may not mediate the influences of the person-environment interaction on well-being.

The second hypothesis predicted a positive relationship between residents' attitudes regarding the ideal environment and perceptions of their own nursing home environments. This hypothesis was not confirmed for any of the SCES scales. The assumption underlying this hypothesized relationship is the one which underlies the entire notion of person-environment congruence: individuals are most likely to be found in environments which meet their desires and needs (Kahana et al., 1980). If this assumption were true, there should be a close relationship between beliefs about the ideal environment and perceptions of one's own environment. This was not found to be true of the residents studied here.

This assumption implies a rational decisionmaking

process on the part of elderly individuals who enter nursing homes. That is, an individual would have to be aware of his/her own environmental preferences or personal needs, have some knowledge about what various environments are like, and have control over the decisionmaking process. In reality, few elderly individuals are in a position to exercise such a degree of control over this process. In the sample studied here, for example, the majority (60%) of residents admitted that they had not made the decision to move to the nursing home themselves. Thus there may in fact be very little reason to expect to find close agreement between residents' preferences and their perceptions of their actual environments.

The third hypothesis predicted that residents' perceptions of the environment would be similar to staff assessments of the objective environment. This hypothesis was disconfirmed by the MANOVA's for the SCES sub-scales in two of the three settings.

In the present context, staff scores on the SCES are the measure of alpha press, the objective environment. Given this, Hypothesis 3 postulated that residents' subjective perceptions of their environments would correspond fairly closely to the actual environment. Generally, this was not observed to be true.

There is no basis provided in the literature for determining how alpha and beta press should be related. Although Murray (1938) believed that, on an individual

level, a wide divergence between the two types of press was pathological (p. 122), his own research emphasized beta press, not alpha press (p. 290). Stern (1970) acknowledged the importance of alpha press in developing taxonomies of situational variables (p. 7), but collected data on beta press only. Kahana (1975) has obtained objective assessments of environmental characteristics along with both staff and resident assessments. Her work thus far, however, has presented results in terms of alpha press (staff ratings) only (Kahana et al, 1980).

Thus previous research and theory provide no clues as to how alpha and beta press might differ. Presumably, such differences would be highly idiosyncratic, varying from environment to environment. The current results show that when staff ratings are used as the measure of alpha press, there is not a close correspondence between these ratings and residents' perceptions of their nursing home's environment.

The fourth hypothesis stated that residents' perceptions of the environment would not directly influence feelings of control and choice and life satisfaction without consideration of feelings regarding the ideal environment. To rephrase this argument, the perception of the real environment and beliefs about the ideal environment interact to produce feelings of control and life satisfaction.

The first test of this hypothesis involved seeing whether

perceptions of the environment were, in fact, directly related to control and life satisfaction. The results showed they were not: a resident's perception of the environment is not by itself useful for predicting life satisfaction. This was expected, since according to the hypothesis, there must be some knowledge of the resident's evaluation of the particular component in order to be able to predict outcomes. Moreover, perceptions and evaluations will interact to produce outcomes: positive outcomes result from agreement between perceptions and evaluations, while negative outcomes result from disparity between these two elements. The test of this hypothesis showed that for four of the seven SCES dimensions, the interaction between perceptions and evaluations accounted for a significantly greater amount of the variability in life satisfaction scores than either perceptions or evaluations independently. These results were not obtained when scores on the control and choice measure, rather than LSI scores, were used as the dependent variable in the analyses.

The findings with regard to life satisfaction showed that for four of the seven SCES sub-scales, the prediction of life satisfaction is significantly improved by considering the interaction of the perception and evaluation components. Not all of these components, however, were actually useful in predicting life satisfaction scores. That is, the overall F-tests of the usefulness of the regression models (including

each SCES scale score, response to the corresponding ideal question, and their interaction) showed that only two components, self-exploration and organization, were useful in predicting life satisfaction.

This hypothesis is equivalent to those explored by person-environment fit researchers in gerontology. In the model presented here, resident ratings of the nursing home environment are a measure of beta press. Views about the ideal nursing home environment are equivalent to the person measures used by Kahana and Nehrke. In Kahana's work, the person component has been operationalized by expressed preferences for various environmental attributes (Kahana et al., 1980). Nehrke and his colleagues have also used expressed preferences for environmental components, accompanied by assessments of the importance of these components, as their measure of the person (Nehrke et al., 1979; Sperbeck et al., 1980). In the present study, residents' feelings about the ideal nursing home are equivalent to the preferences expressed by Kahana's and Nehrke's subjects.

The results for this fourth hypothesis are therefore consistent with, and can be explained by, the concept of person-environment fit. In the present context, if a resident has a high need for self-exploration, as indicated by her expressed preference (belief about the ideal nursing home) for self-exploration, and perceives her own environment to be high in exploration, then the person-environment relation-

ship is congruent. If, however, one thinks that self-exploration is a negative environmental attribute, and that her environment encourages self-exploration, then the person-environment relationship is a dissonant one. It should be noted that the terms "congruent" and "dissonant" are not used here, as they are in social psychology, to refer to cognitive elements (as in, for example, Festinger's cognitive-dissonance theory). Rather, they are used as they were by Stern (1970) to describe the relationship between personal needs and environmental press.

According to Stern, congruent need-press relationships produce feelings of satisfaction, while dissonant relationships result in discomfort and stress (1970, p. 8). The results regarding Hypothesis Four here provide support for Stern's ideas, at least along the dimensions of self-exploration and organization. In this regard, the findings of the present study are consistent with those of Kahana et al. (1980) and Nehrke et al. (1979) in showing that congruence between perceptions of the nursing home environment and preferences regarding the environment is associated with relatively high levels of life satisfaction. In addition, all three studies show that regardless of the specific dimensions along which the social environment is conceptualized, only two or three of these dimensions are actually related to life satisfaction.

The results of the test of this hypothesis might also be interpreted within the context of Lawton's (1975) ideas of personal competence and environmental press. According to Lawton, people of lower competence will be more sensitive to environmental stimuli or press. The term competence, as used by Lawton, refers to health, perceptual capacity, motor skills, and cognitive capacity (1975, p. 18). Following Murray, Lawton sees press as potentially positive or negative. The determination of whether a particular press is positive or negative can be made only with knowledge of the competence of the individual (1975, pp. 25-26).

Within the context of this hypothesis, levels of self-exploration and organization are viewed as environmental (beta) press. As such, they are neither positive or negative, which is why the present results show no direct relationship between perceptions and life satisfaction. Beliefs about the ideal nursing home environment may be viewed as the direct result of one's level of competence. Thus, if the competence level of one resident does not allow her to deal with a high level of self-exploration, then self-exploration as an environmental attribute will be negatively evaluated--that is, not a component of her ideal nursing home. Thus, for this resident, self-exploration is a negative press. The more this resident views her environment as one which encourages self-exploration, the more negative the outcome

(in this case, lowered life satisfaction).

Hypothesis Five stated that beliefs about the ideal nursing home environment would be related to individual differences in residents' physical health or personality. Personality here was operationalized in terms of the 15 needs measured by the Adjective Checklist. The tests of this hypothesis failed to find any relationship between beliefs about the ideal nursing home and functional health or the personality variables.

As noted above, the test of the previous hypothesis (Hypothesis Four) was equivalent to the procedures used by Kahana and Nehrke to examine person-environment fit. In Hypothesis Five, the present study went beyond the work of previous investigators by attempting to explore the antecedents of expressed preferences for various environmental components. Rather than considering environmental preferences to be the person component of the person-environment interaction, this hypothesis suggests that such preferences result from, and are related to, underlying person characteristics. In terms of Lawton's model, for example, differences in expressed preferences for environmental characteristics might be the result of differing levels of competence. Thus, although preferences might serve as proxy variables for more direct measures of competence, the two are not synonymous.

The failure to find support for Hypothesis Five is viewed as resulting from the methodological problems

regarding the measurement of the ideal nursing home, as well as the health and personality variables. Since these problems did exist, the present study can offer no empirical evidence to challenge previous conceptualizations of the person component in terms of environmental preferences. On a theoretical level, however, the basic premise of the proposed model, that there are person differences which underlie environmental preferences, may still be valid. If nothing else, it should be possible to measure personal needs directly, using instruments designed for this purpose, rather than inferring their existence from self-reported preferences for various environmental components.

Hypothesis Six also related to the health and personality variables. This hypothesis suggested that these factors would be related to observed differences between the objective environment (staff ratings) and residents' perceptions of the environment. This hypothesis was not confirmed: neither health ratings nor scores on the ACL were related to differences between staff and resident SCES scores.

This hypothesis assumed that staff ratings of the nursing home represented the objective environment, and that any discrepancy between these scores and those of residents represented a systematic distortion of perceptions on the part of the latter group. This distortion, in turn, was seen as being related to individual differences, either in

health (representing a variable relating to Lawton's idea of competence) or in personality.

The methodological issues reviewed earlier are again implicated in the failure to confirm this last hypothesis. Specifically, it is difficult to determine the extent to which staff ratings are a measure of alpha press. Given this, it cannot be definitely stated that resident ratings really did represent deviations from the actual environment. It can only be said that although staff and residents did often view their environments differently, these differences could not be explained by residents' health status, nor by individual differences in personality.

Suggestions for Future Research

The results of this study suggest several areas for future investigation. First, a closer examination of the relationship between feelings of control and positive outcomes is called for. In the present study, as well as in others, less than 20% of the variance in life satisfaction is explained by perceptions of control. Future studies should explore a wider range of outcome variables, including satisfaction with place of residence, level of cognitive functioning, and behavioral measures of functioning. In addition, more work should be done exploring other factors which influence the relationship between personal control and positive outcomes. One useful approach here would be to examine Schulz and Hanusa's (1980) idea that different

elderly individuals have different expectations for control. It may be, for example, that some nursing home residents would like to be able to control certain aspects of their environments which they now cannot control (such as when to eat meals, or where recreational activities are scheduled). These residents may, however, have come to accept the fact that they will not be able to control these aspects of their environment--that is, there will be no expectation for control on their part. Thus, if they do not report feelings of control, this will not necessarily impact negatively on outcome indicators.

Another possible area of exploration, also suggested by Schulz, is that the relationship between control and choice and positive outcomes is mediated by the type of environment in which the resident lives (Schulz & Hanusa, 1980). The results observed in the present study support this idea: the correlation between life satisfaction scores and perceptions of control and choice was significant in one setting, but not in the other two settings. A study done by Wolk and Telleen (1976) suggests that level of residential constraint in an environment might be one variable mediating the control-satisfaction relationship. These investigators examined perceived autonomy (rather than perceived choice or control) and found this factor to be a significant predictor of life satisfaction in settings which were low in constraint, but not in settings which were highly constraining. Future studies of this type would prove useful in determining the

circumstances and factors which affect the relationship between life satisfaction and feelings of control and choice.

The present study provides support for the findings of Kahana and Nehrke which state that knowing a nursing home resident's perception of his/her environment and how (s)he feels about what (s)he perceives is more useful in predicting outcomes than knowing the former alone. Moreover, consistency between perception and evaluation does seem to be related to positive outcomes, whereas inconsistency is associated with negative outcomes. Although Nehrke et al. (1979) stress the usefulness of taking importance ratings into account, their results are not substantially different from Kahana's or from those of the present study (in fact, research has shown that residents tend to rate all of the environmental dimensions as important--see Elias et al., 1980). Thus, regardless of whether the evaluation takes the form of expressed preferences (Kahana), preferences and importance (Nehrke), or beliefs about the ideal nursing home (the present study), the results appear to be the same.

Future research is needed regarding how best to conceptualize the environment. Kahana (1974, 1975) used Kleemeier's (1961) proposed environmental dimensions, along with dimensions related to characteristics of the elderly as found in the gerontological literature, to arrive at her 18 scales. Nehrke et al. (1979) used 15 of Kahana's dimensions. The present study used Moos' seven environmental

dimensions which were also based on Kleemeier's work. Although Moos' SCES is a more carefully developed measure of the environment than the EPPIS or Kahana's measure, the latter two were based on considerations relating to the study of person and environment characteristics along similar dimensions. The present study shows, however, that given an adequate conceptualization of the environment, a researcher can easily ask residents for preferences, or for beliefs about the ideal environment, along the relevant dimensions.

The model which guided this investigation proposed that it is possible to discover underlying variables which will explain residents' environmental preferences, or beliefs about the ideal nursing home environment. The relevant question then becomes, why do some people prefer particular environmental attributes and other people reject these and prefer others? Two possibilities, differences in health and personality, were examined here, and neither was related to beliefs about the ideal nursing home. Possible reasons for this have already been discussed. Despite the fact that no evidence was found for the existence of these antecedents, it is believed that future research is still needed in this area. The contention here, then, is that the "person" dimension in person-environment interaction studies in gerontology has still not been adequately assessed.

Another area worthy of future exploration is the comparison of differences between resident and staff assessments of the institutional environment. The results here showed these perceptions to be different, but to be unrelated to resident health and individual differences. In this regard, work with other components of the MEAP would undoubtedly shed light on the extent to which either group's perceptions relate to the actual physical environment. Kahana (1975) also has data on all three components: objective observer assessments, staff perceptions and resident perceptions. This type of data will help in resolving the issue of how well alpha press is represented by staff ratings of the environment, and how closely alpha and beta press are related for nursing home residents.

The ultimate intent of the study of person-environment interactions in elderly nursing home residents is to be able to match residents and nursing homes so as to maximize the likelihood of positive outcomes. Given this, it will be necessary to begin studies of a more proactive nature. As a first step, it would be of interest to know elderly individual's preferences, or views about the ideal nursing home, before they actually become residents. This could be accomplished in a longitudinal study, for example, by giving the ideal form of the SCES to potential residents on waiting lists, and to the same residents a few months,

and again one year, after entering the nursing home. By accompanying the latter two testings with administration of the real form, any changes in preferences related to perceptions of the actual environment would become apparent.

Another method for matching would be to use a "template" technique similar to the one proposed by Bem and Funder (1978). Using a Q-sort technique or an instrument such as the ACL, Bem and Funder propose constructing a template which describes a person likely to exhibit some set of behaviors or outcomes in a particular situation. By matching descriptions of other individuals with the template, it is possible to predict the extent to which the behaviors in question will be demonstrated in that situation.

In the present study, the Bem and Funder technique might be applied by profiling residents who scored in the top third on the LSI in each setting. These profiles would consist of descriptions of the residents on the ACL's. Then, for each potential resident in the future, all that would be needed would be an ACL description to determine which environment that resident would do best in. Such an effort would, of course, need to involve many more residents and settings than the number used here.

Finally, it is possible to outline the major aspects of the ultimate person-environment interaction study in this area. Such a study would first need to ensure that potential residents did indeed have a choice of where they

would live. Data would be available for each of the potential settings carefully documenting its physical and psychosocial environment. Detailed information would also be collected regarding the characteristics of people who do well in that environment. This last element would be assessed by a wide array of outcome measures, including psychological well-being, physical health, and assessments of cognitive and social functioning.

The information collected on current nursing home residents would include personal history data as well as descriptions of personality characteristics. This same data would then be collected for each person who is a potential nursing home resident. The potential resident would then be placed in the particular setting which is most likely to lead to positive outcomes for that individual. Residents' behavior and psychological functioning and well-being would be carefully monitored after placement, and interventions would be instigated if needed.

The ideal situation represented by this hypothetical study may never be fully realized. It is certainly true that current efforts in the area of person-environment interaction for the elderly in nursing homes have a long way to go to reach this idealized study. It is also true, however, that this line of research does hold the promise that some day psychologists and gerontologists will be able to match

persons and environments to maximize benefits to aging individuals.

It is unlikely that any nursing home will ever be able to meet all of the needs of its residents. Nursing homes are institutions, and few people, if given the choice, would be likely to choose to be institutionalized. Yet, research has shown that almost 40% of the population will spend at least some time in a nursing home at some point in their lives (Vicente, Wiley, & Carrington, 1979). The promise of person-environment research is that for these aging individuals, their time in sheltered care settings will be spent in dignity, with satisfaction, and with enhancement of physical and psychological well-being.

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APPENDIX A

APPENDIX A

- yes no 1. If you had a choice of where you could live, would it be here? _____
- yes no 2. Did you make the decision to move here? _____
- yes no 3. If you were having a problem with another resident here would you go to the staff for help in solving the problem? _____
- yes no 4. Do you like your present living situation? _____
- yes no 5. Did you find that you had to change in any way when you first came here? _____
- yes no 6. Is your present living environment very similar to the last place you lived? _____
- yes no 7. Do the staff ask for your advice when changes are planned which might affect you? _____
- yes no 8. When you have a problem, such as family problems, do you talk them over with another resident? _____
- yes no 9. Try to think back to right before you came here; did you know anything about the facility before you were admitted? _____
- yes no 10. Do you feel that you could help a new resident make the transition to this facility easier than it might be alone? _____

APPENDIX B

APPENDIX B

SCES Ideal Form (abbreviated)

1. In the ideal nursing home, residents would be involved with and encouraging to each other, and staff would be helpful and encouraging to residents.

agree

disagree

2. In the ideal nursing home, residents would be discouraged from saying angry things or criticizing staff or other residents, even if they felt angry at them.

agree

disagree

3. In the ideal nursing home, staff would set up and run most of the activities and would make most of the residents decisions for them.

agree

disagree

4. In the ideal nursing home, residents would keep their feelings and personal problems to themselves, and not discuss them with staff or other residents.

agree

disagree

5. In the ideal nursing home, everything would be organized and carefully planned, with little confusion.

agree

disagree

6. In the ideal nursing home, staff would make up all the rules and would carry them out strictly.

agree

disagree

7. In the ideal nursing home, everything would look nice and it would not be crowded or noisy.

agree

disagree

APPENDIX C

APPENDIX C

Name of Resident: _____
 Date of Interview: _____
 Time of Day: _____

1. How cooperative was the subject during the interview?

1	2	3	4	5	6	7
very uncooperative						very cooperative

2. How well did the subject seem to understand the questions?

1	2	3	4	5	6	7
very well						not very well

Rate the subject's functional status (check one):

- Normal; no complaints; no evidence of disease
- Able to carry on normal activity; minor symptoms or signs of disease
- Normal activity with effort; some signs or symptoms of disease
- Cares for self; unable to carry on normal activity or to do active work
- Requires occasional assistance but is able to care for most of her needs
- Requires considerable assistance and frequent medical care
- Disabled; requires special care and assistance
- Severely disabled; hospitalization indicated although death not imminent
- Very sick; hospitalization necessary
- Moribund; fatal disease process progressing rapidly

Interviewer: _____

APPENDIX D

APPENDIX D

Subject Consent Form

I am with the psychology department at Virginia Commonwealth University in Richmond. We are doing a study to determine if a relationship exists between the environment in which you live and your personal well-being. I am giving questionnaires to residents which include questions regarding your feelings and attitudes about life, and your feelings about the environment in which you are now living. All questionnaires are anonymous and will be seen by no one but me. The staff of this facility will not have access to these questionnaires and you are asked not to put your name on the questionnaires.

This is to certify that I, _____, hereby agree to participate in this investigation of the relationship between the environment and personal well-being by completing the questionnaires which will take approximately one hour of my time. I have been informed that none of the information will be used for any other purpose than this research project, and that my responses will be kept confidential. All of my questions concerning the research project have been answered to my satisfaction. I understand that I may withdraw from the research project at any time if I choose to do so.

Resident's Signature

Date

Investigator's Signature

Date

VITA

