PERSONAL AND ENVIRONMENTAL PREDICTORS OF
WELL-BEING IN THE INSTITUTIONALIZED ELDERLY

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PERSONAL AND ENVIRONMENTAL PREDICTORS OF WELL-BEING IN THE

INSTITUTIONALIZED ELDERLY

by

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ABSTRACT

The well-being of 150 cognitively alert institutionalized senior citizens (thirty from each of five institutions), was measured by three predicted variables: Avowed Happiness, the Affect Balance Scale, and the Free Recall Task. Both personal and environmental variables were utilized as predictors of well-being. Various multivariate analyses were performed on the data.

Well-being as measured by the Avowed Happiness Scale was independently predicted by seven out of fourteen variables. Important personal predictors included: Financial satisfaction, perceived health, self-acceptance, religiosity and sex, while independently predictive environmental variables were: housing satisfaction and perceived autonomy. Four of the variables predictive of the Avowed Happiness Scale also explained independent variance in the Affect Balance Scale: financial satisfaction, self-acceptance, housing satisfaction, and religiosity. Activity, another personal predictor variable, was also an important predictor for the Affect Balance Scale, alone. Cognitive ability and self acceptance were independently predictive of the Free Recall Task.

Only the subjectively and not the objectively derived environmental variables were predictive of well-being, while the interactions between three environmental and three personal variables were not predictive. The institutional samples differed marginally on both the predictor and predicted variables. Of the three measures of well-being, variance in Avowed Happiness was accounted for to the greatest extent by the predictor variables, in both the multiple regression and the canonical correlation analyses.

ACKNOWLEDGEMENTS

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CHAPTER I

INTRODUCTION

Currently a major area of research concern is the study of the predictors of well-being among the elderly. The present literature review will deal with relevant findings and problems associated with these predictors.

There is considerable confusion in the literature over the predictors of well-being among the elderly and three major reasons appear to be responsible for this confusion: 1) problems concerning the measures of well-being; 2) difficulties with the predictors of well-being; and 3) the tendency to view the elderly as a homogeneous population.

Problems with the Measures of Well-Being

One cause of confusion is that several different measures have been used to assess well-being and various labels have been applied to the well-being construct (i.e., life satisfaction, morale, adjustment, happiness, etc.). According to a recent study (Lohmann, 1977), the correlations between these various scales tend to be fairly high. However, confusion has often arisen in distinguishing among the components and the predictors of well-being.

A good scale of well-being should have two characteristics: reliable components, and simplicity of conception (i.e., limited efficient independent components and limited content).

When the scale is applied to various elderly populations, by different experimenters, at different times, the same components should emerge with factor analysis. Otherwise, one can never be sure exactly what is being assessed with the measure at any particular time.

Simplicity of conception, i.e., limited components and content, is desirable in a scale of well-being, to: help maintain a strict differentiation between well-being and related constructs (Graney, 1973); facilitate sensitivity to short term fluctuation; and maintain a distinction between the current affective state and the strategies that the individual uses to cope with this (Stones and Kozma, 1976). A scale consisting of a small number of components which explain large amounts of variance would be preferable and would be considered more important than one with a larger number of factors, each accounting for limited variability. The most economical set of components would be orthogonal (having little or no variance in common), so that each component is contributing unique variance to the well-being scale.

Most of the major scales fail in meeting at least one of these requirements. For example, the Philadelphia Geriatric Morale Scale (PGC) (Lawton, 1975I), has very broad content, having items concerned with comparisons of: past states with present ones; oneself with peers; and future predictions. The Life Satisfaction Index, form A (LSI-A) (Neugarten et al., 1961), also has broad content, interrelated components and questionable validity.

Only one scale has been found to meet these standards and this is self-ratings of Avowed Happiness (Wilson, 1967). The construct well-being, when measured directly shows higher reliability than most other well-being scales (test retest reliability of .67 after 2 years and split

half reliability of .87).

The Bradburn Affect Balance Scale (ABS) (Bradburn, 1965), has been found to be a promising scale, as its content is limited to current levels of happiness or unhappiness and its two reliable components are orthogonal.

The Free Recall Task (of Pleasant and Unpleasant Events) (Stones, Kozma and Hunt, 1977), is a further means of measuring well-being as categorized by positive and negative experience.

Problems with the Predictors of Well-Being

A major difficulty with the predictors of well-being is that the various predictors have been measured in different ways. For example, socio-economic status has been assessed in terms of the number of years of education, occupational prestige, level of income, financial satisfaction, or a composite index of several of these variables. Activity has been measured as a composite social scale (including family, extra family and organizational activity), as social roles, as media use (i.e. television viewing), as association membership and as face to face interaction, as a composite of usual day and future diary scores, ten hobby-like categories, or by formal activities inventories. Various means have been used to measure cognitive ability: the Comprehension and Vocabulary subtests of the WAIS, the Crossing Off Psychomotor Task, Piagetian Task Performance, and Word Fluency. Age has been divided into various categories or measured as self-perception (i.e., do you see yourself as middle aged or elderly?). Self and physician ratings, physical disability and medical records have been used to quantify health; while locus of control, stress, impulse control, social adjustment, developmental task accomplishment, self-acceptance and aggression have been investigated as personality

areas. Perceived autonomy, number of activities provided by an institution, building size, ownership and height have been used to assess housing satisfaction or to predict well-being.

Another important difficulty is that many studies of the predictors of well-being fail to control for the intercorrelations between the predictors and report only zero order correlations. A more adequate method of analysis which takes these intercorrelations into consideration is Multiple Regression Analysis. In this analysis an indication of the amount of independent variance explained by each predictor is provided. An optimum ratio of one predictor-variable to thirty subjects is recommended by Kerlinger and Pedhazur, (1973) and Skanes, (1978), to minimize error and to obtain maximum information from one's data. The order of entry of variables into the equation is crucial as shared predictive variance between two predictors is attributed to the variable entered earlier into the analysis.

Viewing the Elderly as a Homogeneous Population

The third major problem is the tendency to think of older people as being very similar to one another and expecting the same variables to predict well-being in everyone. Evidence for regarding the elderly as heterogeneous comes from some discrepant findings in studies investigating the predictors of well-being in the elderly. Also, a large proportion of the variance in test scores from the major scales of well-being has been left unexplained by currently utilized predictors.

Further possible evidence for the need to view the elderly as a heterogeneous population comes from a study by Wolk and Telleen (1976), who found different predictors of life satisfaction depending on the elderly sample (institutionalized, versus a retirement community of home

—owners). Some problems with this study, including the different order
of variable entry into the stepwise regression analysis for the two samples,
are covered in the literature review.

Certain predictors which have received much attention in previous
research will be reviewed: physical health, socio-economic status,
activity, and age. Several other variables which have been researched
less, but which could still be important in the prediction of well-being
will also be discussed: personality factors, cognitive ability, resi-
dential characteristics, and sex.

Physical Health and Well-Being

Physical health has been investigated in several ways: as self-
perceived health, physician rated health, as symptoms of illness and as
disability.

Perceived Health and Well-Being.--While the relative importance
of perceived health as a predictor of well-being may vary slightly from
one study to the next, the evidence for the prominence of self-perceived
health in the prediction of well-being is strong. Studies investigating
only zero order correlations have found a relationship between self-
perceived health and well-being (i.e., Maddox and Eisdorfer, 1962; and
Storandt et al., 1975). In the case of the latter authors, a poor predicted
variable was used, a judgement by two psychologists, after a five minute
unstructured interview. More adequate studies using multiple regression
analysis, have found perceived health to be one of the best independent
predictors of well-being (i.e., Bull and Aucoin, 1975; Cutler, 1973;
Edwards and Klemmack, 1973; Spreitzer and Snyder, 1974; and Palmore and
Luikart, 1972).

Anxiety may play a role in the relationship between perceived
health and well-being. Bradburn (1969) discovered evidence that high

illness (felt sick recently, or long term illness, either of which necessitated a reduction in activities), correlated with the Negative Affect Scale (NAS), a subsection of the ABS, while low illness was related to low NAS scores with low anxiety subjects. In high anxiety subjects health and negative affect appeared to be uncorrelated.

There is some evidence that self perceived health may be a better predictor of well-being when one views one's health more negatively. Using stepwise multiple regression analysis, Wolk and Telleen (1976), found self-perceived health related to life satisfaction for their institutionalized residents, but unrelated to life satisfaction in a retirement community sample of home owners. The subjects of the former sample were lower in self-perceived health than the retirement community residents. The authors suggested that health may only be important to life satisfaction when it is poor. This reasoning by Wolk and Telleen was supported by Bradburn (1969), who noted that health was related only to the Negative Affect Scale (NAS) (a measure of current unhappiness) and not to the Positive Affect Scale (PAS) (a measure of present happiness).

Overall, the variable, perceived health appears to be a very strong independent predictor of well-being in the elderly.

Physician Rated Health and Well-Being:--Perceived health appears to be a much better predictor of well-being than physicians' ratings of health. There is some evidence that the latter variable may contribute in a limited way to the explanation of variance in well-being. Some support of a relationship between physician rated health and well-being comes from research studying only zero order correlations (i.e., Maddox

Eisdorfer, 1962; and Lawton, 1971). Storandt et al. (1975), found no relationship between well-being and physician rated health. However, they used a poor predicted variable, a judgement by two psychologists after a five minute unstructured interview. This predicted variable was not related to the Zung Depression Scale (1967), or to self-assessed life satisfaction. Minimal effects of physician rated health on well-being were discovered in a study using multiple regression analysis (Palmore and Luikart, 1972). This variable was not predictive of well-being for their older sample, aged 60-70 years, or for women.

Symptoms of Illness, Disability and Well-Being:--There is some evidence for a relationship between symptoms of illness and disability and well-being. Some support for a relationship comes from studies investigating zero order correlations (i.e., Maddox and Eisdorfer, 1962; Smith and Brand, 1975; and Beiser, 1974). However, no independent relationship was attained between the number of ailments last month or last year and life satisfaction after controlling for the effects of a number of variables including self-perceived health (Edwards and Klemmack, 1973).

Summary

Clearly, the most important independent predictor of well-being of the physical health variables is self-perceived health.

Personality and Well-Being

Various aspects of personality have been studied: self-acceptance, anxiety, neuroticism, social interaction style, locus of control of reinforcement, and religiosity. Some of these variables may be of a different nature than the other predictors of well-being discussed in

this literature review. Some personality variables may be different aspects of the construct, well-being, rather than predictors of well-being.

Self-Acceptance and Well-Being:--This variable appears to be independently predictive of well-being. Zero order correlations between self-acceptance and well-being were found in several studies (i.e., Turner et al., 1972; Frenkel-Brunswick et al., 1962; and Zung, 1967).

Wolk and Telleen (1976), using stepwise multiple regression analysis, found self-acceptance independently related to life satisfaction, but only for their retirement community sample of homeowners and not for their institutionalized sample. The authors offered a tentative interpretation that the life satisfaction of the institutionalized sample (which was less healthy), was mostly dependent on health ratings, while less physical and more psychological attributes could be crucial to the satisfaction of the retirement community residents. However, the variable self-acceptance was entered into the analysis sixth for the institutional sample, and third for the community residents. Had the variable self-acceptance been entered sooner for the former sample, it may have been found to be predictive of life satisfaction for that group. Also, one predictor variable used, developmental task accomplishment, consisted of items pertaining to health, activity and income, the former two of which were also entered into the analysis singularly as variables. Since this appears to be a rather redundant and unhelpful variable (due to the combination of variables), it should probably have been dropped from the analysis. Then, shared variance between self-acceptance, developmental task accomplishment and life satisfaction would have been attributed to self-acceptance.

No zero order correlation was discovered for a sample aged 21 years and over, by Veroff et al. (1962), however they did not directly enquire into the self-acceptance of their subjects, but rather asked them how they differed from others. They found the variable, "shortcomings," correlated with well-being only for men.

Anxiety and Well-Being:--There is evidence that anxiety is related to well-being. Studies investigating zero order correlations have found some support of a relationship between anxiety and well-being (i.e., Goldings, 1954; Chiriboga and Lowenthal, 1971, for a young and middle aged sample; Beiser, 1974, for a sample 18-65 years of age and over; Bradburn, 1969, for persons 21-60 years of age, who found longstanding problems, but not those of short duration related to the NAS). Carp (1974), using multiple regression analysis, found that anxiety had some predictive effect on peer and administrator ratings of adjustment; however, no significance levels were provided. Anxiety was not predictive of happiness. However, had Carp used a more adequate ratio of predictors to subjects, anxiety may have been found to be important.

Neuroticism and Well-Being:--There is some evidence that neuroticism may be related to well-being. A number of studies investigating zero order correlations, noted a relationship between neuroticism and well-being (i.e., Cameron, 1975; Aldrich, 1964; Schonfield, 1973I; Storandt et al., 1975; Beiser, 1974, for a sample 18-64 years of age and over; and Moriwaki, 1974, for those aged 60 years and over). Impulse control was found to be related to the PGC and an interviewer's rating of adjustment but not to life satisfaction (Kahana and Kahana, 1975). Storandt et al. (1975), found no relationship between neuroticism

and well-being, however they used a poor predicted variable, previously discussed.

Social Interaction Style and Well-Being:--There appears to be some evidence for the influence of social interaction style on well-being. Research investigating zero order correlations supports a relationship between social interaction style and well-being (i.e., Wilson, 1960, for young adults; Felton and Kahana, 1974; Chiriboga and Lowenthal, 1971, for a younger and middle aged sample; and Beiser, 1974, for a sample 18-64 years of age and over). In a more adequate study using multiple regression analysis, Carp (1974) also found evidence of a relationship between social interaction style and well-being; however, she did not mention whether or not her results were statistically significant.

Locus of Control of Reinforcement and Well-Being:--Locus of control appears to be a fairly strong independent predictor of well-being. Reid and Ziegler (1977) found zero order correlations between locus of control and life satisfaction. In a multiple regression analysis study, Palmore and Luikart (1972), found belief in internal control to be the second best independent predictor of life satisfaction for those 60-71 years of age, and the third best variable for their total sample aged 46-71 years. It was not a good predictor for men, but it was the third most important predictor of life satisfaction for women.

Religiosity and Well-Being:--Religiosity does appear to be related to well-being. Support for a relationship between religiosity and well-being comes from several studies concerned with zero order correlations (i.e., O'Reilly and Pembroke, 1956; for young samples, Wilson,

1965, and Hartmann, 1934, generalizability to the elderly is questionable in these two studies; however, since religion seems to have been more popular in the past, perhaps it is even more important to the elderly). Graney, (1975), also found that changes in the frequency of church attendance were almost correlated with changes in well-being, (p < .07), for a small sample. More satisfactory studies utilizing multiple regression analysis, found further evidence for a positive relationship between religiosity and well-being (i.e., Edwards and Klemmack, 1973, for involvement in church related organizations; and Spreitzer and Synder, 1974). However, for the latter authors, only .5 per cent independent variance in well-being was explained by the variable church attendance. This amount of explained variance was probably found to be statistically significant because of the large sample size. This variable was only independently predictive of well-being for those under the age of 65. However, Theisen (1962), found that increasing age was associated with decreasing church attendance chiefly because of poor health. To decrease the conflicting influence of health, a better measure of religiosity would appear to be a test of religious attitude or self-assessed religiosity.

After matching subjects on several variables, Moberg (1956) found that the number of religious activities with which a person was involved was related to well-being. Moberg and Taves (1965), did not obtain a difference in well-being between church leaders and non-church members after taking into consideration employment status. However, a comparison of church members and non-church members would have allowed more direct conclusions regarding the effects of religiosity on well-being. Person- ality and other variables probably distinguished church leaders from non- leaders. Also, their predicted variable, the Cavan et al. (1949) Attitude Inventory is limited in its usefulness, because most of its items refer to predictor variables (i.e., satisfaction with health, social

relationships, work, usefulness, economic security, religion, as well as including an item on general happiness). Palmore (1968), also found no relationship between change (over ten years) in religious activity and change in the Cavan et al. (1949) Attitude Inventory. This measure of religiosity has previously been criticized. Adding further to the doubt of the utility of the predicted variable, was the failure to obtain a statistically significant relationship between changes in health and changes in attitude. Cameron (1975) discovered a negative correlation between religiosity and well-being; however, since his study was concerned only with young subjects, its generalizability to elderly people is questionable.

Summary

It appears that the best personality predictors of well-being are self-acceptance, locus of control of reinforcement, and religiosity.

Socio-economic Status and Well-Being

Socio-economic status has been studied in various ways: as financial satisfaction, income, occupation, education, and as general status.

Financial Satisfaction and Well-Being:--Although in the literature there is only one study which compares the independent predictability of financial satisfaction to other socio-economic status variables, this factor appears to be one of the strongest independent predictors of well-being. It is similar in strength to perceived health. Spreitzer and Snyder (1974), using stepwise multiple regression analysis, found financial satisfaction to be the best independent predictor of well-being

for a group under 65 years of age, and the second best predictor for those over age 64 after perceived health. These results were obtained after considering the effects of a number of variables including perceived class, education, occupation, and income.

Income and Well-Being:—This variable does not appear to add additional independent explained variance to well-being after controlling for the effects of financial satisfaction.

Two studies using multiple regression analysis found no independent relationhip between income and well-being (i.e., Carp, 1974, but she used too small of a ratio of predictors to subjects; and Spreitzer and Snyder, 1974, who, as previously mentioned, controlled for the effects of financial satisfaction).

Several less adequate studies investigating only zero order correlations found statistically significant relationships between income and well-being (i.e., Smith and Brand, 1975; Beiser, 1974; and Bradburn, 1969).

Two studies which used multiple regression analysis, found some evidence of the independent predictability of income on well-being. However, neither study considered the effects of financial satisfaction (i.e., Palmore and Luikart, 1972; and Edwards and Klemmack, 1973). Had they controlled for that latter variable it is doubtful that income would still explain independent variance. In the Palmore and Luikart study only .7 per cent variance in life satisfaction was explained by income, and that only for their younger and not for their older sample, aged 60-71 years.

Occupation and Well-Being:--Occupation does not appear to
independently predict well-being.

When Spreitzer and Snyder (1974) controlled for the effects of a
number of variables including financial satisfaction by using multiple
regression analysis, occupation did not independently predict Avowed
Happiness. Edwards and Klemmack (1973) found occupational status to be
independently predictive of life satisfaction. However, had they con-
trolled for the effects of financial satisfaction it is doubtful that
occupational status would have been found to be independently predictive
of life satisfaction.

A less adequate study by Maddox and Eisdorfer (1962), which
investigated only zero order correlations, found a statistically signif-
icant relationship between occupation and well-being.

Education and Well-Being:--Education does not appear to independ-
ently predict well-being.

No relationship was noted between education and well-being in a
study investigating zero order correlations by Beiser (1974), or by
several authors who used multiple regression analysis (i.e., Spreitzer
and Snyder, 1974; Wolk and Telleen, 1976; and Carp, 1974). Palmore and
Luikart (1972) used multiple regression analysis and found that education
did explain a small amount of variance in life satisfaction, but only for
their younger sample and not for those 60-71 years of age. Had these
authors controlled for the effects of financial satisfaction, it is
doubtful that education would have been found to be predictive.

Two less adequate studies considering only zero order correlations
found a positive relationship between education and well-being (i.e.,

Storandt et al., 1975; and Bradburn, 1969).

General Status and Well-Being:--General status does not appear to be an important predictor of well-being.

Spreitzer and Snyder (1974) found that perceived class explained only .9 per cent variance in well-being (this amount of explained variance was probably statistically significant because of the large ratio of predictor variables to subjects, 1-129). This result was obtained only for their younger and not for their older sample, aged 65 years and over.

Cutler (1973) and Bull and Aucoin (1975) in replication, controlled voluntary association participation and perceived health. The former researcher, using too large a sample (a ratio of one predictor variable to sixty subjects), found that status independently predicted life satisfaction. The latter authors with a ratio of one predictor variable to thirty subjects, an optimal ratio, found no relationship. Data was lost in these studies, however, due to categorization of variables. Had more variables, especially financial satisfaction, been entered into the analysis it is doubtful that this variable would have been found predictive of well-being.

In a less adequate study investigating only zero order correlations, a positive relationship was obtained between general status and well-being (Storandt et al., 1975).

Summary

The most important socio-economic status predictor of well-being, explaining the most variance, appears to be financial satisfaction.

Cognitive Ability and Well-Being

Cognitive ability has been measured in various ways: as Piagetian Task Performance (PTP), by the Set Test (Isaacs and Akhtar, 1972), using subtests of the Wechsler Adult Intelligence Scale (WAIS) (1955), and by the Associate Learning subtest of the Wechsler Memory Scale.

Some evidence exists for the predictive importance of cognitive ability. Studies investigating only zero order correlations found a relationship between cognitive ability and well-being (i.e., DeCarlo, 1974; Storandt et al., 1975; and Hartmann, 1934).

Using multiple regression analysis in a pilot study, Stones and Cyr (1976) found that a substantial statistically significant amount of variance in composite morale was explained by the PTP for a non-institutionalized sample, while the Set Test (Isaacs and Akhtar, 1972), accounted for independent variance in an institutionalized sample (3.39% variance). The latter amount of explained variance was not statistically significant due to a very small sample size. The Vocabulary subtest of the WAIS was not useful in predicting composite morale. The effects of variables such as health and financial satisfaction were not controlled in this study. Had these and other variables been included, the predictability of cognitive ability may have been reduced.

In three studies, no relationship between cognitive ability and well-being was obtained. However, the subjects in the first two investigations were university students. With such subjects one would expect relatively little variation in scores and doubtful generalizability to the elderly (i.e, Jasper, 1930; and Watson, 1930). In the third study

various subtests of the WAIS were used, including the Vocabulary sub-
test (Palmore and Luikart, 1972). Stones and Cyr (1976), as previously
mentioned, found the latter scale to be a poor predictor of well-being.

Summary

The Set Test appears to be the most promising predictor of well-
being of the cognitive ability scales for the institutionalized elderly.

Activity and Well-Being

The effects of various types of activities on well-being have been
investigated: i.e., organizational, informal social, non-social, and
general activity.

Organizational Activity and Well-Being:--There appears to be a
relationship between organizational activity participation and well-being.
Three studies utilizing multiple regression analysis provide evidence
for the independent contribution of organizational activity to well-
being. (i.e., Edwards and Klemmack, 1973, for church related organizational
participation; Carp, 1974, who did not mention the significance level;
and Palmore and Luikart, 1972, who found organizational activity partic-
ipation to be the third best predictor of well-being for those aged
60-71 years). Studies investigating only zero order correlations also
found evidence for a positive relationship (i.e., Beiser, 1974, for a
sample aged 18-94 years; Graney, 1975, who found changes in association
attendance related to well-being for those 66-92 and 82-92 years of age).

Storandt et al. (1975) obtained no relationship between organiza-
tional activity and well-being, but they used a poor predicted variable,
previously criticized. Also, Cutler (1973) and Bull and Aucoin (1975)

in replication, obtained no relationship. However, their measure of voluntary association participation was limited to those organizations mentioned by the authors. Also, both the predicted and the predictor variable were categorized, such that variance was lost.

Informal Social Activity and Well-Being:--Informal social activity does appear to be related to well-being. Evidence for this relationship was provided in a multiple regression study by Edwards and Klemmack (1973). Each of: frequency of visiting neighbors; frequency of phoning others; and the number of neighbors known, was independently predictive of well-being. Further evidence for a positive relationship was provided by studies investigating only zero order correlations (i.e., Maddox, 1963; Palmore, 1968; Smith and Brand, 1975; Lemon et al., 1972; Neugarten et al., 1961; Graney, 1975, who also found that a change in visiting neighbors was related to a change in well-being; Turner et al. 1972; and Wylie, 1970). Carp (1974) failed to find a relationship between well-being and social activity, but she used too small a sample. Palmore and Luikart (1972) also found no relationship, but their social activity scale included a number of items that were entered into the analysis previously as part of the organizational activity measure. This practice could have reduced the predictability of social activity. Social activity was independently predictive for men aged 46-71 years. Having a confidant was also important only to the well-being of men. This latter finding is in accord with results of Bradburn (1969), who found that married men were less likely to be high on the NAS and were higher in well-being than single men. Novelty may be a crucial aspect of social activity as Bradburn also found for his sample aged 21-60

years, that social participation was related to positive affect only when novelty or socio-economic status was low and esteem for others was high. Novelty was related to the PAS at every sociability and socio-economic level.

Education was correlated with social participation and with novelty for those aged 21-60 years (Bradburn, 1969), but he did not say if this was a statistically significant result. Also, Schonfield (1973I) found that retired professionals in the community had the highest future activity scores.

Non-Social Activity and Well-Being:--There does appear to be a relationship between non-social activity and well-being. Evidence was provided for this relationship in two studies utilizing multiple regression analysis (i.e., Palmore and Luikart, 1972, for productive hours; and Sauer, 1977). Studies investigating only zero order correlations also found support for a positive relationship (i.e., Storandt et al., 1975; however, the authors questioned whether or not a proper analysis had been undertaken; and Graney, 1975, who discovered that radio listening and changes in radio listening were not related to changes in happiness for those aged 66-75 years, but were most strongly related for those aged 82-92 years). This latter finding could have been due to health changes.

One study by Lemon et al. (1972) obtained no relationship between non-social activity and well-being; however, they investigated only zero order correlations. They also utilized a predicted variable that was experimenter rated (Life Satisfaction Rating, LSR, Neugarten et al., 1961). Beiser (1974) found that hobbies were related both to positive and to negative affect, for a

sample aged 18-65 years.

General Activity and Well-Being:--Few studies have investigated the effects of general activity levels on well-being. However, some support for a positive relationship between general activity and well-being was provided by research studying zero order correlations (i.e., Jeffors and Nichols, 1961; and Schonfield, 1973). Changes in activity level were related to changes in well-being in three other correlational studies (i.e., Palmore, 1968; Maddox, 1965; and Maddox, 1963).

Wolk and Telleen (1976), in a study using stepwise multiple regression analysis found that general activity, a checklist of forty activities, each rated on the frequency of participation (frequently, irregularly, or not at all) was not related to the LSI-A.

However, a more objective measure of the frequency of activity participation would have been the number of hours spent per week or per month engaged in activity. They also did not specify the type of activity (i.e., social) that they measured. Activity was entered after the variable, developmental task accomplishment, a previously criticized procedure. Had this latter variable been omitted, activity may have been found to be predictive of well-being.

Summary

There appears to be some evidence for positive relationships between all activity measures and well-being.

Residential Characteristics and Well-Being

The effects of three main areas of residential characteristics on well-being have been investigated: housing satisfaction, perceived

autonomy and, indirectly, residential activity provision.

Housing Satisfaction and Well-Being:--There is evidence for a positive relationship between housing satisfaction and well-being. Studies investigating zero order correlations provide support for a relationship between housing satisfaction and well-being (i.e., Schonfield, 1973I; Maddox and Eisdorfer, 1962; and Schooler, 1975). The latter mentioned author found a favorably perceived environmental change, especially in dwelling unit quality, associated with improvement in some measures of well-being. Those who experienced a decline in environmental quality were the most likely to undergo a reduction in well-being and health. Felton and Kahana (1974) noted that lack of privacy in an institution was related negatively to life satisfaction.

Residents in federally assisted age segregated housing were significantly better (showed more increase) than community residents who did not apply for such housing after one year in change for the better in well-being, activity, etc.; in housing satisfaction; in satisfaction with the status quo; in having more involvement in activities; but they were worse in health and no different in morale (PGC) (Lawton and Cohen, 1974). Analysis of covariance controlled original well-being, age, sex, race, income, religious background, and health. The authors proposed that their results may have been affected by a differential rate of health decline (greater for the rehoused) evident pre-move which should have been taken into account. The balance between the positive aspects and changes with rehousing and the negative factor of reduced health probably was responsible for the lack of site-control difference in morale.

Lawton (1969) discovered that of three apartment sites, the residents at the location with no services (medical, meals and housekeeping) compared to those at the site with service provision, were younger, healthier, more active in organizations, more mobile and happier. He concluded that older people attempted to match their competence with an appropriate level of environmental support. Comparing two of the sites after one year and treating health and initial scores on each dependent variable as covariates, Lawton (1975II) found residents with no services higher in activity while those with many services showed some relative gains in morale and housing satisfaction. He concluded that the two environments had selective effects on different individuals.

Perceived Autonomy and Well-Being:--Perceived autonomy does appear to be an important predictor of well-being; however, the effects of this variable have not been greatly researched. Two studies considering zero order correlations found evidence for a relationship between perceived autonomy and well-being. Slover (1972) discovered that for elderly mental patients a decline following relocation was associated with environments lacking in warmth, individuation, and autonomy. Marlow (1973) noted that environmental variables predicted follow-up better than personal ones, with the degree of autonomy, critical.

In a study using stepwise multiple regression analysis, Wolk and Telleen (1976) found that perceived autonomy was a very strong predictor of the LSI-A for a retirement community sample of home owners. This variable was not found to be a useful predictor for the institutionalized sample. However, it was entered into the analysis after developmental task accomplishment, a previously criticized procedure. Perceived

autonomy also was included in the analysis one step later for the institutionalized subjects as compared with the retirement community sample. This latter practice does not allow for a direct comparison of the relative effectiveness of perceived autonomy in predicting well-being in the two samples.

Residential Activity Provision, Activity and Well-Being:--

Activity provision appears to be associated with an increase in activity for age segregated samples, when the residents have a predisposition towards, or past experience with activity, and when they have not previously reached their activity threshold. In these studies investigating residential conditions, it has been found that at some age segregated housing sites, activity or housing satisfaction was related to well-being. The independent effects of activity provision have not been assessed through the use of multiple regression analysis.

Sherman (1974) found that residents in age segregated housing (site residents) matched case by case with those in dispersed housing on: working and marital status, age, income, education, occupation, rental versus ownership, household composition, and number of children, but not on health and not different in general activity levels (not considering social visiting), increased in average activity after two years. Those in dispersed housing (controls) exhibited a decrease in activity. Site residents were higher in activity than controls after two years.

Activity patterns, however, differed greatly from site to site. Residents at only 3/6 sites had activity scores higher than their controls. Numerous on-site activities were provided at these three residences. This activity provision combined with an increase in the

availability of like minded peers probably also resulted in the greater statistically significant increase in club membership and social life relative to controls. A positive relationship was noted between activity and having "found the life you were looking for," for one of these sites. The author suggested that the expectation of greater participation led there to a favorable outlook. However, the causal relationship could have been reversed.

Of the three sites where the residents did not differ in general activity from their controls, one site had very limited activity provision, another had high provision but overall low participation. At this latter site a positive relationship between morale and activity was attained. In this case the authors proposed that those whose outlook was sufficiently optimistic were more likely to seek out activities (again the causal relationship could have been reversed). The authors suggested that there may be a threshold of past experience and predisposition required before activity level can be altered by retirement housing. These subjects were relatively lower in education and income. There is some evidence for a positive correlation between higher education and activity (Bradburn, 1969).

At the other site where no test-control general activity differences were obtained, many activities were offered and the residents were very active; however, the control group of this site had good physical mobility, relative youth and were economically advantaged and therefore least likely to have aspects of their behavior dependent on external conditions. The authors submitted that this was another threshold beyond which it was difficult to increase activity. However, the site residents did show a greater increase than controls in club

membership and social life. General activity and morale were related for these site residents. At another site with residents similar in economic means and social life, test control differences in general activity were found, suggesting to the authors that age could have been critical in that case. Health rather than age was probably the cause. These site residents also consisted of a greater proportion of widowed and never married women compared to the other site residents who were similar in outlook and means, so they could have been more dependent on other residents for companionship. An increase in opportunity for companionship could have resulted in site control differences in general activity.

Several reasons for the lack of a greater relationship between morale and activity scores were suggested by the authors. There was a lack of variability in measures. Activities studied were perhaps not the most meaningful ones (i.e., socializing was left out of the general activity score). The authors were unable to distinguish pre-move activity levels. Different styles of aging could have affected the results (i.e., Neugarten, 1961, found focussed, disengaged and constricted personalities were low in activity but high in satisfaction). Also, both variables were categorized, thereby losing information.

Accepted applicants to planned housing (apartments) compared with those not accepted for membership one year after rehousing increased in organizational, social and non-social activity, in housing and neighborhood satisfaction, health (objective, subjective, and mental) and morale (Carp, 1966).

Selectees did not differ from non-selectees in the characteristics included in the legal requirements of the Housing Authority

(Carp, 1966). The analysis of covariance model took into account initial differences between the subgroups which she stated, but gave no figures, were few in number and small in size. It appears that this was a case where residents were able to take advantage of activity provision.

If selectees and non-selectees truly were not different, it would seem that more satisfactory housing led to an increase in morale. Whether this was achieved through greater activity, an increase in housing quality or through an increase in health then morale, cannot be discerned.

Another example of the positive benefits of service provision was a study by Pincus and Wood (1970), who found that residents of eight institutions made more use of and were better satisfied with resources in resource rich homes (physical plant, activity program).

It appears that on site activity provision can lead to greater activity for persons of good economic means, but who are older or poorer in health and who have previously been somewhat hampered in social interaction; or for those who are lacking somewhat in means and social contact but have a predisposition towards activity. Poor health could prevent a gain in certain types of activity.

When residents are in good health, younger, have good physical motility and are economically independent, activity may not increase with good activity provision. However, persons of the latter case in age segregated housing could still increase in social contacts (greater proximity to peers) and that alone may be associated with well-being.

Sex and Well-Being

It is questionable whether this variable has an independent effect on well-being or not. It appears that the evidence weighs more heavily on the negative side; however, more studies controlling for the effects of other variables are needed.

Personality could be an important variable to consider when investigating the effects of sex on well-being. Palmore and Luikart (1972) found elderly women to be more externally controlled than elderly men. Also, women appear to have more personality problems than men (i.e., worry, anxiety, and lower self-esteem) (i.e., Heron and Chown, 1967; Atchley, 1976; Gutman, 1966; Bradburn, 1969; and Bradburn and Caplovitz, 1965, who found that women aged 25-49 years were much more prone to high anxiety, though no significance levels were given).

Several authors who investigated only zero order correlations found no relationship between sex and well-being (i.e., Bild and Havighurst, 1976; Gurin et al., 1960, for a sample aged 21 years and over; Bradburn, 1969; and Bradburn and Caplovitz, 1965, who found for younger and middle aged samples that women were higher only on the NAS).

No sex difference in well-being was obtained in one study which controlled the effects of personality and interpersonal competence in subjects aged 18-60 years (Chiriboga and Lowenthal, 1971). Also, in two studies utilizing multiple regression analysis, sex was not independently predictive of well-being. For these studies the zero order correlations were not statistically significant either (Palmore and Luikart, 1972; and Edwards and Klemmack, 1973).

Some evidence does exist, however, for a relationship between sex and well-being. Atchley (1976) using a limited range sample, found both male phone employees and teachers to be lower on depression than their female counterparts, after controlling education, income adequacy (is your present income enough to meet your living expenses?), marital status, and age. Women phone employees were not different from male teachers in the degree of depression. Financial satisfaction would have been a better measure of income adequacy, because one might be able to meet minimum expenses while still being dissatisfied with income. Other variables such as health and personality should have been controlled, as well as job status (more male teachers had more prestigious adminis- trative positions).

Stones and Cyr (1976) discovered that sex explained 5.55 per cent of the variance in composite morale for a non-institutionalized sample of elderly--a non-statistically significant amount due to the small sample size. Age and cognitive ability were the only variables controlled, however. Again, such variables as personality and financial satisfaction should have been included. No appreciable variance was accounted for in the institutionalized sample.

Spreitzer and Snyder (1974), controlling many variables, found that sex explained only .9 per cent (p < .05) independent variance in Avowed Happiness for those under age 65 (women were found to be higher than men on the dependent variable). This amount of explained variation in well-being could have been found statistically significant because of the large ratio of predictor variables to subjects (1 to 129), as could the zero order correlation for the total sample, 18-65 years of age and over, of -.05 (p < .05), the lowest correlation of the twelve variables.

With a similar zero order correlation of -.02, Palmore and Luikart (1972) found no relationship. For those 65 years of age and over, however, sex explained 2.6 per cent ($p < .05$) independent variance in well-being in favor of males (Spreitzer and Snyder). No mental health, personality or activity controls were used in this study, though, which if included may have reduced the predictability of this variable. Additionally, the authors did not appear to have adjusted their results in terms of their large ratio of independent variables to subjects, therefore they were most likely inflated.

Age and Well-Being

Most studies did not obtain an independent relationship between age and well-being after controlling for the effects of other variables (i.e., health, socio-economic status).

Several studies examining only zero order correlations obtained no relationship between age and well-being (i.e., Beiser, 1974, for those aged 18-65 years and older; Maddox, 1963, for those aged 60-80 years and older; Maddox and Eisdorfer, 1962, also for those aged 60-80 years and older; Neugarten et al., 1961, for those 50-90 years of age; Storandt et al., 1975, for persons 61-88 years of age; and Kutner et al., 1956, for those 60-80 years of age and over).

Controlling for the effects of education and income, Bradburn (1969) did not discover a relationship between age and well-being for a sample aged 21-60 years. Several other studies utilizing multiple regression analysis also found no evidence for an independent relationship between age and well-being. Although in two of these studies an initial statistically significant zero order correlation was obtained

(i.e., Palmore and Luikart, 1972; Edwards and Klemmack, 1973; and

Spreitzer and Snyder, 1974). The latter authors found a higher zero

order correlation between both health and financial satisfaction with

well-being for those over age 64 compared with those 18-63 years of age.

Several studies did find statistically significant relationships

between age and lower well-being; however, they investigated only zero

order correlations (i.e., Kutner et al., 1956; Cameron, 1975; Lewinsohn

and MacPhillamy, 1974; and Zung, 1972). Carp (1974) did control several

variables but found age only independently predictive of popularity,

although no significance levels were reported.

Some evidence of an increase in well-being with age was dis-

covered by Stones and Carnell (1976) using an elderly sample and their

middle aged children. The elderly recalled more pleasant events but

fewer unpleasant ones while both younger and older groups generated a

comparable number of events and retained equivalent proportions of these

over an eighteen day period. Again, inadequate controls were used (i.e.,

personality).

Purpose of the Present Research

The present research was conducted in order to investigate three

major concerns: 1) to verify past trends in the predictors of well-

being; 2) to study the effectiveness of other less researched variables;

and 3) to determine whether institutional qualities altered the trends

in predictors. A more minor concern was to differentiate between the

three measures of well-being.

(1) Previous research investigating the predictors of well-being of

senior citizens has been almost exclusively concerned with community

residents. The present study was conducted to discover whether previously obtained trends could be replicated with institutionalized elderly.

(2) Other less researched variables, including environmental as well as personal factors, were included in the present investigation in order to study their effectiveness.

(3) This study was also undertaken to determine whether the nature of a particular institution altered the trend in the predictors of well-being (i.e., to investigate whether or not the different institutional samples varied in the predictors of well-being).

(4) The fourth purpose of the present research was to differentiate between the three measures of well-being in terms of the variance accounted for by the predictors in the regression and canonical correlation analyses.

Hypotheses

Hypotheses for the main effect predictors, both personal and environmental, will be discussed as well as those for the three interactions.

Main Effects

Perceived health and financial satisfaction are expected to be the strongest predictors of well-being as they have demonstrated their predictive ability in past research. Some evidence exists for the importance of cognitive ability, perceived autonomy, activity, locus of control of reinforcement, self-acceptance, and religiosity, so these variables are also expected to make a contribution to the prediction of well-being.

Housing satisfaction, quality and activity provision are all rather untried environmental measures, but may, nevertheless, have some effect on well-being.

Religious stress of the institution may not directly relate to well-being; however, the interaction between religiosity and religious stress is predicted to have an independent effect.

Conflicting evidence for the influence of sex on well-being makes prediction difficult, while age does not appear to be independently related to well-being. However, chronological age is included in the analysis for further examination.

Interaction Effects

The important influence of the individual's environment on psychological development is an aspect of psychology given much attention. One would expect that one's environment would affect a person's well-being, especially if such an environment were as widely encompassing as that of a senior citizens' home, where one's social contacts, physical surroundings, and style of life is much determined by one's living arrangements.

Since individuals differ in their likes and dislikes it is also conceivable that an environment that suits one person may not be appropriate for another.

Taking these factors into consideration, the first two interactions were hypothesized.

1. The Interaction of Locus of Control of Reinforcement by Perceived Autonomy on Well-Being.

Internal control and high perceived autonomy are expected to have a positive relationship with well-being. However, with higher autonomy, internal control is expected to be a more important predictor of well-being than with lower perceived autonomy. There should not be much

difference in the level of well-being between internally and externally

controlled individuals in an environment with lower perceived autonomy,

because the internally controlled person would not be allowed as much

opportunity to exercise control.

In Figure 1 a hypothesized graph of this interaction is provided.
The representation of this interaction, as well as of the other two inter-
actions to follow, is not meant to be exact in terms of the intersection
of the lines, or to be specific in the location of the plot in terms of
the axes. It is the overall relationship between the two lines which is
expected.
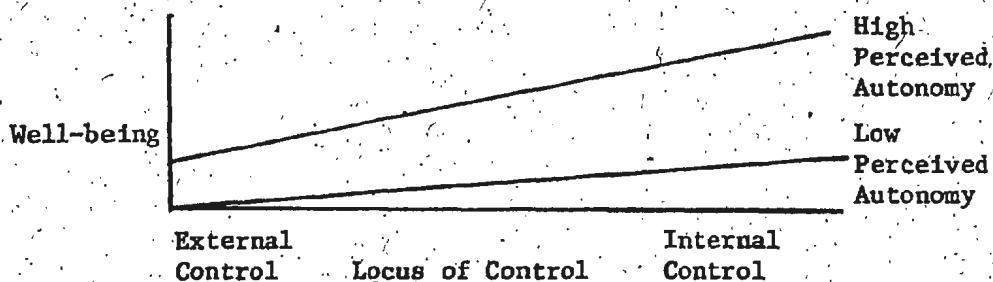
Figure 1. The Hypothesized Graph of the Interaction of Locus of Control
of Reinforcement by Perceived Autonomy on Well-being.

2. The Interaction of the Religious Stress of an Institution by
   Religiosity on Well-Being.

The extent of religious devotion is hypothesized to be a stronger

predictor of well-being in environments which place a higher degree of

stress on religion (i.e., more religious activity provision and there-

fore more opportunities for positive affect for the religious person).

Also, in these homes the attitudes of administrators and other residents

would probably be more favorable towards the more religious person which

should add to the well-being of such a person. In fact, a person of

low religious faith could be less happy in a home with high religious

stress than in one with low religious stress. Figure 2 depicts the form of the hypothesized relationship.
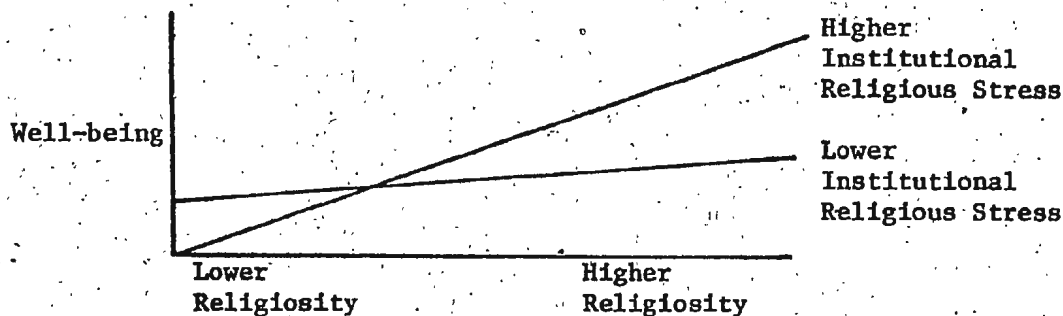
Figure 2. The Hypothesized Graph of the Interaction of Religiosity by Religious Stress of an Institution on Well-Being.

3. The Interaction of Institutional Activity Provision by Activity of Residents on Well-Being.

It was hypothesized that activity would be a better predictor of well-being in a setting where the number of hours of activity provided by an institution was low. It was expected that persons who are active in situations of low activity provision would generally speaking be more energetic than most active persons in the higher activity provision environments, since it would require more initiative to become involved under the former conditions. This energy and consequent activity should be related to well-being.

A hypothesized graph of the relationship is provided in Figure 3.
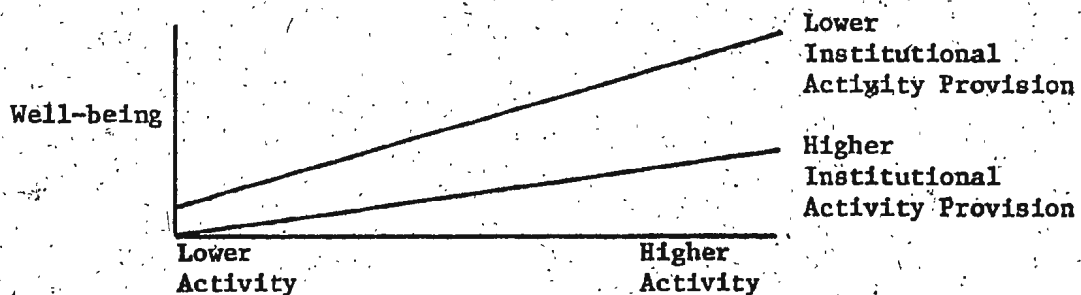
Figure 3. The Hypothesized Graph of the Interaction of Institutional Activity Provision by Activity of Residents on Well-Being.

CHAPTER II

METHOD

Subjects

Thirty senior citizens from each of five senior citizens' homes (150 residents), were interviewed. Administrators provided a list of residents who were perceived by the staff to be cognitively alert. Additional non senile residents, as judged by the researcher, after administration of the questionnaire, were included. The mean age of the subjects was 80 years (s.d. = 8.08 yr.). Twenty six women and four men were interviewed at institutions 2, 3 and 4; while a more equal ratio was obtained from the other two residences.

In the present study the ratio of 1 predictor variable to 9 subjects was used, due to time constraints. This is not the ideal ratio of 1/30 and some information could be lost. The ratio is large enough so that most of the important predictors of well being should be indicated (Skanes, 1978; Kerlinger and Pedhazur, 1973).

Measures

1) Predicted Variables

Current level of well-being was measured in the present study by three scales: The Affect Balance Scale (Bradburn, 1965); The Free Recall Task (Pleasant and Unpleasant Events) (Stones, Kozma and Hunt, 1977); and by an Avowed Happiness Scale.

The Affect Balance Scale has two orthogonal components: Positive and Negative Affect (Bradburn, 1969; Beiser, 1974; and Moriwaki, 1974). The five items for each subscale relate to current well-being. There is some question as to the relative weights of the two subscales in accounting for well-being (Stones, 1976). Bradburn has used

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an equal weighting.

The Free Recall Task consists simply of having the subject relate as many instances from each category (Pleasant/Unpleasant events) as has occurred during the past month. This measure has been found to correlate well with Avowed Happiness.

. Avowed Happiness was measured on a 7-point scale. Initially, as with all of the 7-point rating scales used in this study, an attempt was made to discover which half of the scale was an appropriate placement for a particular individual; i.e., subjects were first asked if they were happy or not too happy. Then, depending on their answer, they were asked further questions to determine where exactly on that half of the scale they belonged. If they said that they were happy, they would then be asked if they were very happy, mostly happy, or whether they felt a little on the happy side.

All predicted and predictor measures can be found in Appendix A.

2) Predictor Variables

Self-Perceived Health

Self-perceived health was also measured on a 7-point rating scale and a score was obtained in a manner similar to that of the Avowed Happiness score. Subjects were asked if their health was good or not too good; then a finer distinction was made depending on their answer.

. A subjective health scale was chosen over an objective measure because Palmore and Luikart (1972) found the former type of scale to be a better predictor of well-being than the latter. Also, Jaslow (1976)

found that many persons with disability still perceived their health very positively.

Financial Satisfaction

A 7 rather than the 3-point financial satisfaction scale utilized by Spreitzer and Snyder (1974) was adopted in this study to hopefully obtain more variability in scores. Again scores were obtained as before. Subjects were asked if they were satisfied with finances or not and then a finer distinction was elicited.

This measure of socio-economic status was chosen because Spreitzer and Snyder (1974) found it to be a better independent predictor of well-being than family income, education, or occupational prestige.

Self-Acceptance

Twelve first person items from the Berger (1952) Self-Acceptance Scale were used to measure self-acceptance. Several items of this scale that appeared to too closely resemble those of the ABS, as well as a couple appearing to assess locus control were dropped from the measure. Each item was self-rated on a 7-point scale. Whole test reliability was .897 (Berger, 1952). Wolk and Telleen (1976) found the full scale to be independently predictive of the LSI-A for community residents and though not predictive of their institutionalized subjects, this was probably mainly because of too small of a sample. This variable accounted for the most independent variance over any other personality measure tested.

Activity

     The activity measure was an altered version of Schonfield's
Activity Scale (1973I). Subjects were asked to list all usual day
activities and the approximate time spent at each. Then they were
requested to name and approximate the time to be spent at special
appointments or outings (activities which were not performed on a usual
day) in which they would be engaged during the forthcoming week (i.e.,
Bingo, family visits, special duties, etc.).

     The total activity score was a summation of the number of hours
accounted for during a usual day (other than time spent resting or
sleeping) plus the number of hours to be spent in the forthcoming week
for special events. In contrast to these methods, Schonfield dis-
tinguished between active and passive pursuits, thereby excluding such
pastimes as reading, visiting with one's roommate, watching TV,/etc.,
all activities which could very well be related to enjoyment or well-
being for some people. Also, activity was not expressed as a proportion
of active hours over the number of hours awake in the present research,
for with the utilization of that method a person active 6/12 hours
would achieve the same score as one engaged 1 out of 2 hours which does
not appear to provide an accurate measure of general personal activity.

     This general activity measure was chosen over more specific ones
because the research literature has indicated support for the importance
of most types of activity in the prediction of well-being (except per-
haps for organizational membership (Sauer, 1977), which is not con-
sidered in this study). Also, since the elderly are believed to be
heterogeneous, different types of activity are expected to be predictive

of well-being for different types of people.

Locus of Control of Reinforcement

The first person items of the Jessor Internal-External Control of Reinforcement Scale (Jessor, 1968) were used to assess locus of control. This measure was also utilized by Palmore and Luikart (1972) and was found to be a good independent predictor of well-being for a community sample of elderly.

Religiosity

Religiosity was measured on a 7-point scale as before. Subjects were asked if they were a religious person and then a finer distinction was made. A self-rating was used instead of a more objective scale because for the variables health and socio-economic status the former type of measurement explained more variance in well-being scores.

Cognitive Ability

The Set Test (Isaacs and Akhtar, 1972) assessed cognitive ability in the present study. Persons were asked to name as many countries, parts of the human body and the house, four-footed animals and fruits, that they could within a 40-second time limit for each category. Administration procedure departed from that utilized by Isaacs and Akhtar who set no time limit and used only four instead of five categories. The Set Test was utilized in the only partially controlled study which showed some evidence for the effects of cognitive ability on well-being (Stones and Cyr, 1976).

Housing Satisfaction

Self-perceived housing satisfaction was measured on a 7-point scale and rated in a manner similar to previous scales in this study. A person was asked if they were satisfied with their residence or not too satisfied and then a finer distinction was requested. This measure was preferred to one devised by Schonfield (1973I) whose focus of interest was too broad for present purposes (comparisons with peers and past conditions).

Institutional Activity Provision

Activity provision of an institution was measured as the number of hours in the summer May-August, 1977, wherein an institution provided some form of activity or entertainment (i.e., the number of hours of bus trips, tea parties) plus a score for each home on physical recreation facilities (i.e., the provision of sewing machines, hobby shops, etc.).

Objectively derived (i.e., activity provision) as well as subjectively derived scales (i.e., housing satisfaction), were included in this study to assess environmental characteristics and to discover their relative importance.

Institutional Quality

For each institution subscores from 31 quality categories (i.e., availability of transportation, proportion of single rooms) were totalled to obtain a quality score. This measure was included as another objectively derived environmental score.

Religious Stress of the Institution

This score for each institution was the average number of hours in the summer 1977 that the institution provided some form of religious activity (i.e., church services, religious music) for the average person in the home, irregardless of his religious denomination. In calculating the score it was assumed that residents attended only services of their own denomination.

To obtain a religious stress score for each institution, the per cent of the institutional population belonging to each religious denomination in the home was multiplied by the total number of hours of religious activity provided for each denomination. These subscores were then summed, in order to obtain the total number of hours in the summer of religious activity provided by each home, for the average person in that institution.

Perceived Autonomy

Perceived autonomy was measured using a slightly modified version of the 6-item scale utilized by Wolk and Telleen (1976). Instead of rating each of the six items on a 5-point scale, a 7-point one was used. This scale was found independently predictive of well-being for a community sample of elderly (Wolk and Telleen).

Age

Age was measured chronologically and not grouped into categories in order to retain variability.

CHAPTER III

RESULTS

Multiple Regression Analyses with Hierarchical Inclusion

Three separate multiple regression analyses with hierarchical inclusion were performed for each of the three predicted variables: Avowed Happiness, the Affect Balance Scale, and the Free Recall Task. Identical predictor variables were entered for each separate analysis in the same order to discover: which of the three regression equations explained the most variation in the predicted variables; which predictors were important for each predicted variable; and whether or not the same predictors were important for all predicted variables.

This was not a stepwise regression analysis wherein the order of entry of variables into the equation is determined by a computer program. With hierarchical inclusion as was used in the present analysis variables are entered in an order preassigned by the researcher.

The order of entry into the analyses proceeded as follows: perceived health was entered first because of the strong research evidence for its importance; then financial satisfaction, locus of control of reinforcement and cognitive ability were included together, the former variable because of the research evidence and the latter two since they were expected to be causally related to the former variable. Next, came self-acceptance because of research evidence; then, activity was included after self-acceptance because a causal relationship

was predicted, i.e., it was hypothesized that a more self-accepting person, being less self-conscious, could focus more attention outward onto other people and activities, and would have more confidence to become involved.

Perceived autonomy was entered next as it was also supported by research results, but was included after most of the personal variables, which were predicted to be more important to one's well-being than environmental ones. Religiosity followed, for most evidence of its usefulness was correlational.

Institutional quality and then activity provision were added to the analysis in order to examine their relatively untested effects. Due to the controversy over the predictive ability of sex in the literature this personal variable was entered next. This predictor was followed by institutional religious stress, a variable not expected to add much to prediction but included to test its interaction with religiosity. Housing satisfaction was entered after the other environmental measures because it was expected to be caused in part by them. Finally, age was considered, as not much evidence of its importance was found. Then, all three interactions were included together after all main effects, since any one of the main effects could be responsible for a relationship between the interactions and the predicted variables.

Main Effects

Predicted Variable: Avowed Happiness:--The equation associated with this predicted variable accounted for 42.49 per cent adjusted variance. Variables found to be independently predictive in order of importance were: housing satisfaction (12.51% $p < .001$, independent

variance); financial satisfaction (10.90% p < .001); perceived health (7.49% p < .001); self-acceptance (5.65% p <.01); religiosity (4.55% p < .01); perceived autonomy (3.03% p < .025); and sex (2.30% p < .05) (women happier). Activity approached statistical significance (1.16% F = 2.22, F critical = 3.92).

A summary table of the regression analysis for the predicted variable Avowed Happiness is presented in Table 1.

Predicted Variable: The Affect Balance Scale:--The equation for the prediction of the ABS accounted for 30.44 per cent of the adjusted variance in ABS scores. Independently predictive variables in order of importance were: financial satisfaction (9.91% p < .001); self-acceptance (7.46% p < .001); activity (7.23% p < .001); housing satisfaction (2.86% p < .025); and religiosity (2.58% p < .025). Health and locus of control approached statistical significance (2.22% F = 3.36, and 1.79% F = 2.74), respectively.

A summary table for the multiple regression analysis for the predicted variable, the ABS, is presented in Table 2.

Predicted Variable: The Free Recall Task:--Only 6.55 per cent adjusted variance in the Free Recall Task was accounted for with this regression equation. The only variables which were independently predictive of the Free Recall Task were cognitive ability (6.20% p < .01) and self-acceptance (3.02% p < .05).

A summary table of the regression analysis for the Free Recall Task is presented in Table 3.

TABLE 1

SUMMARY OF MULTIPLE REGRESSION ANALYSIS WITH HIERARCHICAL
INCLUSION FOR THE PREDICTED VARIABLE AVOWED HAPPINESS

Predictor Variable (number = order of entry into the analysis)	Multiple R	R^2	R^2 Change	Level of Significance of R^2 Change	Zero Order Correlation	Beta
1. Perceived Health	.2737	.0749	.0749	$p < .001$	.27***	.16
2. Cognitive Ability	.2738	.0750	.0001		.00	.00
2. Locus of Control	.2741	.0751	.0002		.03	.36
2. Financial Satisfaction	.4291	.1842	.1090	$p < .001$	.36***	.15
3. Self-Acceptance	.4906	.2406	.0565	$p < .01$	.26***	.15
4. Activity	.5022	.2522	.0116		.21**	.00
5. Perceived Autonomy	.5315	.2825	.0303	$p < .025$	.27***	.16
6. Religiosity	.5727	.3280	.0455	$p < .01$	.21**	.08
7. Institutional Quality	.5728	.3281	.0001		.01	-.01
8. Institutional Activity Provision	.5756	.3313	.0032		-.11	.03
9. Sex	.5952	.3543	.0230	$p < .05$	.23**	.16
10. Institutional Religious Stress	.5952	.3543	.0000		.01	-.23

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TABLE 1 (Continued)

Predictor Variable (number = order of entry into the analysis)	Multiple R	R^2	R^2 Change	Level of Significance of R^2 Change	Zero Order Correlation	Beta
11. Housing Satisfaction	.6924	.4794	.1251	$p < .001$	.61***	.42
12. Age	.6987	.4881	.0087		.23**	.10
13. Locus of Control x Perceived Autonomy	.6996	.4894	.0013		.11	-.33
13. Activity x Institutional Activity Provision	.7001	.4901	.0007		.03	.06
13. Religiosity x Institutional Religious Stress	.7003	.4905	.0004		.06	.16

Key: For zero order correlations

    * $p < .02$
   ** $p < .025$
 *** $p < .005$

TABLE 2

SUMMARY OF THE MULTIPLE REGRESSION ANALYSIS WITH
HIERARCHICAL INCLUSION FOR THE PREDICTED
VARIABLE THE AFFECT BALANCE SCALE

Predictor Variable (number denotes order of entry into the analysis)	Multiple R	R^2	R^2 Change	Level of Significance of R^2 Change	Zero Order Correlation	Beta
1. Perceived Health	.1490	.0222	.0222		.15	.11
2. Cognitive Ability	.1680	.0282	.0060		.07	-.08
2. Locus of Control	.2148	.0461	.0179		.16	.14
2. Financial Satisfaction	.3810	.1452	.0991	$p < .001$	.32***	.18
3. Self-Acceptance	.4688	.2298	.0746	$p < .001$	.30***	.15
4. Activity	.5405	.2921	.0723	$p < .001$	.40***	.35
5. Perceived Autonomy	.5423	.2941	.0020		.19*	-.05
6. Religiosity	.5656	.3199	.0258	$p < .025$	.17*	.18
7. Institutional Quality	.5671	.3216	.0017		.05	-.09
8. Institutional Activity Provision	.5773	.3332	.0116		-.18*	-.01
9. Sex	.5860	.3434	.0102		.19	.09
10. Institutional Religious Stress	.5861	.3435	.0001		-.03	.35

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TABLE 2 (Continued)

Predictor Variable (number denotes order of entry into the analysis)	Multiple R	R^2	R^2 Change	Level of Significance of R^2 Change	Zero Order Correlation	Beta
11. Housing Satisfaction	.6099	.3720	.0286	$p < .025$	.41***	.23
12. Age	.6133	.3761	.0041		.04	-.07
13. Locus of Control x Perceived Autonomy	.6133	.3761	.0000		.21**	-.02
13. Activity x Institutional Activity Provision	.6178	.3817	.0056		.02	-.18
13. Religiosity x Institutional Religious Stress	.6195	.3837	.0020		-.01	-.36

Key: For the zero order correlations

    * $p < .05$
    ** $p < .025$
    *** $p < .005$

TABLE 3

SUMMARY OF THE MULTIPLE REGRESSION ANALYSIS WITH
HIERARCHICAL INCLUSION OF THE PREDICTED
VARIABLE THE FREE RECALL TASK

Predictor Variable (number = order of entry into the analysis)	Multiple R	R^2	R^2 Change	Level of Significance of R^2 Change	Zero Order Correlation	Beta
1. Perceived Health	.0615	.0038	.0038		-.06	-.06
2. Cognitive Ability	.2565	.0658	.0620	p < .01	.25**	.19
2. Locus of Control	.2578	.0665	.0007		.04	-.79
2. Financial Satisfaction	.2614	.0683	.0019		.02	.05
3. Self-Acceptance	.3140	.0986	.0302	p < .05	.18*	.17
4. Activity	.3146	.0990	.0004		.16	-.04
5. Perceived Autonomy	.3224	.1040	.0050		.15	-.15
6. Religiosity	.3308	.1095	.0055		.10	.06
7. Institutional Quality	.3590	.1289	.0194		.14	-.15
8. Institutional Activity Provision	.3889	.1512	.0224		-.28***	-.24
9. Sex	.3891	.1514	.0001		.11	.00
10. Institutional Religious Stress	.4033	.1627	.0113		-.18	-.21

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TABLE 3 (Continued)

Predictor Variable (number = order of entry into the analysis)	Multiple R	R^2	R^2 Change	Level of Significance of R^2 Change	Zero Order Correlation	Beta
11. Housing Satisfaction	.4045	.1636	.0010		.03	-.06
12. Age	.4058	.1646	.0010		.03	-.02
13. Locus of Control x Perceived Autonomy	.4148	.1721	.0074		.09	.82
13. Activity x Institutional Activity Provision	.4148	.1721	.0000		-.18***	.00
13. Religiosity x Institutional Religious Stress	.4149	.1721	.0001		-.17	.05

Key: For zero order correlations

* $p < .05$
** $p < .02$
*** $p < .01$

Interaction Effects

None of the interactions explained independent variance for any of the predicted variables. The only statistically significant zero order correlations obtained, were for locus of control by perceived autonomy for the ABS (.21 $p < .025$) and for activity by institutional activity provision for the Free Recall Task (−.18, $p < .01$).

Canonical Correlation Analysis

A canonical correlation analysis was performed to provide further evidence as to which measures were the best indicators and predictors of well-being. The predicted variables were the same factors as were used in the multiple regression analyses: Avowed Happiness, the Affect Balance Scale, and the Free Recall Task. Similarly, the predictor variables were those main effect variables that were also utilized in the regression analyses.

Results were as follows: two statistically significant canonical variables were obtained. The first had a canonical correlation of .74 and a χ^2 of 152.34, ($p < .001$); while the second had a canonical correlation of .43 and a χ^2 of 41.89, ($p < .025$). A summary table of the canonical correlation and analysis is provided in Table 4.

TABLE 4

SUMMARY TABLE FOR THE CANONICAL CORRELATION ANALYSIS
OF ALL PREDICTOR AND PREDICTED VARIABLES

Number	Eigen-value	Canonical Correlation	Wilk's Lambda	Chi-Square	d.f.	Level of Significance
1	.55	.74	.34	152.34	42	$p < .001$
2	.18	.43	.74	41.89	26	$p < .025$

The first canonical variate could be named Well-Being and its Predictors, as the highest coefficients in order of importance were, for the predicted variables: Avowed Happiness .72, the ABS .42; and for the predictor variables: housing satisfaction .53, financial satisfaction .25, self-acceptance .24, perceived health .20, sex .21, activity .17, and religiosity .18. All variables found to be independently predictive in the regression analyses had the higher coefficients except for perceived autonomy. Coefficients for the first canonical variate are summarized in Table 5.

TABLE 5

COEFFICIENTS FOR THE FIRST CANONICAL
VARIATE IN ORDER OF IMPORTANCE

Predicted Variables	Coefficients
Avowed Happiness	.72
The Affect Balance Scale	.42
Free Recall Task	.08

Predictor Variables	Coefficients
Housing Satisfaction	.53
Financial Satisfaction	.25
Self-Acceptance	.24
Sex	.21
Perceived Health	.20
Religiosity	.18
Activity	.17
Locus of Control	.11
Institutional Religious Stress	-.09
Institutional Quality	-.07
Age	.06
Perceived Autonomy	.05
Institutional Activity Provision	-.03
Cognitive Ability	-.03

The second canonical variate is harder to label. It appears to be comprised of two components (those variables with negative coefficients and those with positive ones). One component of the second canonical variate seems to be the predictors of the ABS (-.58, coefficient on the second canonical variate), and the Free Recall Task (-.75) with (-.31) for self-acceptance, (-.25) for cognitive ability, (-.21) for activity, (-.16) for financial satisfaction, and of lesser importance (-.10) for religiosity, and (-.05) for locus of control. The other component of the second canonical variate appears to be more obscure. It could be labelled age and its correlates, as age is the only variable that is related at the zero order correlation level, to the factors with the higher coefficients on this component. Coefficients were as follows: Avowed Happiness .64; institutional activity provision .72; housing satisfaction .39; institutional quality .38; age .32; institutional religious stress .28; perceived health .21, sex .09; and perceived autonomy .06.

Table 6 provides the coefficients for the second canonical variate in order of importance, separated on the negative and positive coefficients. .

Discriminant Analyses, Analyses of Variance and Multiple Comparisons of Means

Discriminant analyses were performed to discover variations among the institutional samples on the predictor and predicted variables, as a check on the adequacy of the predictors. One would expect that if the individuals at different institutions varied on important independent predictors that they should also differ on the predicted variables. Two separate discriminant analyses were performed; one using environmental

TABLE 6

COEFFICIENTS FOR THE SECOND CANONICAL VARIATE
IN ORDER OF IMPORTANCE, SEPARATED ON
NEGATIVE AND POSITIVE COEFFICIENTS

Predicted Variables	Negative Coefficients
Free Recall Task	-.75
The Affect Balance Scale	-.58

Predictor Variables	
Self-Acceptance	-.31
Cognitive Ability	-.25
Activity	-.21
Financial Satisfaction	-.16
Religiosity	-.10
Locus of Control	-.05

Predicted Variable	Positive Coefficients
Avowed Happiness	.64

Predictor Variables	
Institutional Activity Provision	.72
Housing Satisfaction	.39
Institutional Quality	.38
Age	.32
Institutional Religious Stress	.28
Perceived Health	.21
Sex	.09
Perceived Autonomy	.06

variables (perceived autonomy and housing satisfaction) and sex, and the other including predicted and personal predictor variables.

Univariate analyses of variance tests were also carried out on all variables in order to more exactly pinpoint the location of institutional sample differences on the variables. Where statistically significant F ratios were achieved, multiple comparisons were performed on the means to further specify the location of differences between institutional samples.

The discriminant analysis performed on the first set of predictors (perceived autonomy, housing satisfaction, and sex) revealed two statistically significant discriminant functions, which distinguished the institutional samples on important independent predictors. The first discriminant function had a canonical correlation of .49, Wilk's Lambda of .70 (which indicates a good degree of separation, i.e., the lower the coefficient the better the separation), and a statistically significant χ^2 of 52.37, (p < .001). It distinguished residents at Institution 5 (-.81, centroid of the group in reduced space) from those at Institution 3 (.43) and 4 (.41) on perceived autonomy (.73, standardized discriminant function coefficient) and sex (.62).

Table 7 provides a summary of the two discriminant functions from the first set of variables; while Table 8 provides the standardized discriminant function coefficients of the variables for these two functions.

These coefficients indicate which of the variables are the best institutional sample discriminators. The higher the coefficient, the more important the variable. Table 9 indicates the centroids of groups in reduced space. These are the mean discriminant scores for each

TABLE 7

SUMMARY TABLE OF THE DISCRIMINANT FUNCTION ANALYSIS FOR
ENVIRONMENTAL PREDICTOR VARIABLES AND SEX
BY INSTITUTIONAL SAMPLES

Discriminant Function	Eigen-value	Relative Percentage	Canonical Correlation	Wilk's Lambda	Chi-Square	d.f.	Level of Significance
1	.31	76.67	.487	.70	52.37	12	p < .001
2	.09	23.19	.293	.91	13.11	6	p < .04

TABLE 8

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS FOR FUNCTION 1 AND 2 OF
ENVIRONMENTAL PREDICTOR VARIABLES AND SEX BY INSTITUTIONAL SAMPLES
(higher coefficients indicate more discriminating variables)

Variable	Function 1	Function 2
Perceived Autonomy	.73	.32
Sex	.62	-.70
Housing Satisfaction	.02	.66

TABLE 9

THE CENTROIDS OF GROUPS (INSTITUTIONAL SAMPLES) IN REDUCED SPACE (THE
MEAN DISCRIMINANT SCORES FOR EACH GROUP ON THE RESPECTIVE FUNCTIONS)
FROM THE FUNCTIONAL ANALYSIS OF ENVIRONMENTAL PREDICTOR VARIABLES
AND SEX BY INSTITUTIONAL SAMPLES

Institutional Samples	Function 1	Function 2
1	-.30	.55
2	.28	-.17
3	.43	-.05
4	.41	-.03
5	-.81	-.30

(This provides an indication of which institutional samples are distinguished by the discriminating variables of Table 8).

group (institutional sample) on the respective functions. They indicate which institutional samples are distinguished by the discriminating variables.

Results of the univariate analyses of variance further pinpoint the institutional sample differences revealed by the first discriminant function. Residents at Institution 5 were lower than all other residence samples on perceived autonomy (Newman-Keuls test, $q = 3.70, 4.20, 4.71$ and 4.50; $p < .01$, for Institutions 1 to 4 respectively) and Institution sample 5 as well as 1, had less women than those at Institutions 2, 3 and 4 (Newman-Keuls test, $q = 3.70$, $p < .01$). Table 10 provides a summary of the means and standard deviations for the institutional samples on the environmental predictors and sex, while Table 11 indicates the institutional population scores for the three other environmental variables not included in the discriminant analyses.

The second discriminant function had a canonical correlation of .29, a Wilk's Lambda of only .91, and a χ^2 of 13.11, ($p < .04$) (refer to Table 7). It discriminated those at Institution 1 (.55, centroid of the group in reduced space) from those at Institution 5 (-.30), basically on housing satisfaction (.66, standardized discriminant function coefficient) and perceived autonomy (.32), while they were similar on sex ratio (-.70) (refer to Tables 8 and 9).

In terms of housing satisfaction those at Institution 5 were lower than those at Institutions 1 and 2 (Newman-Keuls test, $q = 3.92, 2.80$ $p < .05$, respectively). Institutional samples 1 and 5 were similar on sex ratio (see Table 10).

As was previously mentioned, those at Institution 5 were lower on perceived autonomy than residents at any other home.

TABLE 10

MEANS AND STANDARD DEVIATIONS FOR INSTITUTIONAL SAMPLES ON ENVIRONMENTAL PREDICTORS AND SEX

Variables	Institutional Sample 1		Institutional Sample 2		Institutional Sample 3		Institutional Sample 4		Institutional Sample 5	
	$\overline{X}$	s.d.	$\overline{X}$	s.d.	$\overline{X}$	s.d.	$\overline{X}$	s.d.	$\overline{X}$	s.d.
Perceived Autonomy**	32.93	4.81	33.33	3.04	34.17	3.73	34.07	2.79	29.57	4.46
Sex**	.50	.51	.87	.35	.87	.35	.87	.35	.57	.50
Housing Satisfaction*	6.30	1.21	5.90	1.45	6.03	1.79	6.10	1.13	5.20	1.50

Key: Overall univariate analysis of variance F ratio statistically significant, *p < .05, **p < .001.

TABLE 11

INSTITUTIONAL POPULATION SCORES ON ENVIRONMENTAL PREDICTORS

Variables	Institution 1	Institution 2	Institution 3	Institution 4	Institution 5
Institutional Activity Provision	1359	340	54	443	1192
Institutional Quality	34	86	73	56	62
Institutional Religious Stress	324	59	18	51	7

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The discriminant analysis performed on the second set of varia-
bles (predicted and personal predictor variables), revealed institutional
sample differences only on variables not important to the prediction of
well-being.

The first discriminant function had a canonical correlation of
.58, a Wilk's Lambda of .48 (very good separation), a χ^2 of 104.44 (p < .001)
and discriminated basically those at Institution 5 (.98 centroid of the
group in reduced space) from the residents at Institution 4 (-.71) on
cognitive ability (-.49 standardized discriminant function coefficient)
and mobility (-.47).

A summary table of information on the discriminant functions is
presented in Table 12, while Table 13 indicates the standardized dis-
criminant function coefficients for the two functions, and Table 14
lists the centroids of groups in reduced space.

To further pinpoint the results of the first discriminant function
for this second set of variables, the multiple comparisons revealed that
residents at Institutions 2 and 4 were both better than the residents at
Institution 5 on cognitive ability (Newman-Keuls test, q = 3.68, p < .05,
q = 4.71, p < .01, respectively). Also, the elderly at Institution 4 were
better than those at Institutions 1 and 3 on cognitive ability (Newman-Keuls
test, q = 4.50, 4.20, p < .01, respectively). In terms of mobility residents
at Institution 5 were less mobile than residents at the other institutions
(Newman-Keuls test, q = 3.70, 4.50, 4.20, 4.71, p < .01, for Institutions
1 to 4).

A summary of the means and standard deviations for the institu-
tional samples on personal predictor and predicted variables is
presented in Table 15.

TABLE 12

SUMMARY TABLE OF THE DISCRIMINANT FUNCTION ANALYSIS FOR PERSONAL PREDICTOR
VARIABLES AND PREDICTED VARIABLES BY INSTITUTIONAL SAMPLES

Discriminant Function	Eigen-value	Relative Percentage	Canonical Correlation	Wilks' Lambda	Chi-Square	d.f.	Level of Significance
1	.50	57.74	.578	.48	104.44	48	p < .001
2	.24	27.90	.442	.71	47.34	33	p < .05

TABLE 13

STANDARDIZED DISCRIMINANT FUNCTION COEFFICIENTS FOR FUNCTION 1 AND 2 OF
PERSONAL PREDICTOR VARIABLES AND PREDICTED VARIABLES BY INSTITUTIONAL
SAMPLES

Variable	Function 1	Function 2
Cognitive Ability	-.49	.30
Mobility	-.47	.45
Age	-.33	-.71
Affect Balance Scale	-.27	-.12
Religiosity	.23	-.22
Perceived Health	.18	.02
Activity	-.18	-.15
Locus of Control	.16	-.10
Free Recall Task	-.14	-.58
Avowed Happiness	-.08	.22
Financial Satisfaction	.04	.19
Self-Acceptance	.00	.14

TABLE 14

THE CENTROIDS OF GROUPS (INSTITUTIONAL SAMPLES) IN REDUCED SPACE (THE MEAN
DISCRIMINANT SCORES FOR EACH GROUP ON THE RESPECTIVE FUNCTIONS) FROM THE
FUNCTIONAL ANALYSIS OF PERSONAL PREDICTOR VARIABLES AND PREDICTED
VARIABLES BY INSTITUTIONAL SAMPLES

Institutional Samples	Function 1	Function 2
1	.23	.62
2	-.13	.24
3	-.36	-.66
4	-.71	.09
5	.98	-.29

(To provide an indication of which institutional samples are distinguished
by the discriminating variables of Table 13).

TABLE 15

SAMPLE MEANS AND STANDARD DEVIATIONS FOR INSTITUTIONAL SAMPLES
ON PERSONAL PREDICTORS AND PREDICTED VARIABLES

Variables	Institutional Sample 1		Institutional Sample 2		Institutional Sample 3		Institutional Sample 4		Institutional Sample 5	
	$\overline{X}$	s.d.	$\overline{X}$	s.d.	$\overline{X}$	s.d.	$\overline{X}$	s.d.	$\overline{X}$	s.d.
Affect Balance Scale	5.50	2.00	5.80	2.14	6.17	2.38	6.33	2.25	4.90	2.23
Free Recall Task*	5.13	.68	5.57	.97	6.47	2.62	6.00	1.26	5.33	1.09
Avowed Happiness	5.50	1.36	5.57	1.46	5.63	1.38	5.80	1.10	5.10	1.77
Perceived Health	4.73	1.78	5.33	1.09	4.70	1.60	4.90	1.67	4.97	1.67
Cognitive Ability**	34.17	13.56	39.97	11.47	36.03	14.05	46.77	14.79	28.73	14.94
Locus of Control	3.40	1.77	3.43	1.50	3.33	1.27	3.87	1.43	3.50	1.72
Financial Satisfaction	5.80	1.24	5.47	1.31	5.67	1.32	5.63	1.03	5.43	1.22
Self-Acceptance	69.77	8.88	67.10	10.31	69.77	10.57	69.30	7.63	65.27	10.75
Activity**	56.70	22.82	63.40	29.63	62.77	30.11	75.37	28.49	43.97	23.40
Religiosity	5.70	.95	5.97	.56	5.93	.45	5.87	.63	5.97	.56
Age*	76.63	9.94	79.20	5.20	84.63	6.45	81.20	6.62	78.67	9.31
Mobility*	2.50	.63	2.63	.56	2.53	.51	2.70	.54	2.00	.59

Key: Overall univariate analysis of variance F ratio statistically
significant at
*$p < .01$
**$p < .001$

The second discriminant function for the personal predictor and predicted variables had a canonical correlation of .44, a Wilk's Lambda of .71, and χ^2 statistically significant of 47.34 (p < .05). It mainly discriminated residents at Institution 3 (-.66 centroid of the group in reduced space from those at Institution 1 (.62) on age (-.71 standardized discriminant coefficient) and the Free Recall Task (-.58) (refer to Tables 12, 13, and 14). In terms of age, residents of Institution 3 were older than those at Institutions 1, 2, and 5 (Newman-Keuls test, q = 4.71, p < .01; q = 3.36, p < .05 and q = 4.20, p < .01, respectively).

Institution 3 residents were higher on the Free Recall Task than those at Institutions 1, 2 and 5 (Newman-Keuls test, q = 4.71, p < .01, q = 3.36, p < .05 and q = 3.68, p < .05, respectively).

The only other difference between residents from the different institutions was that in terms of activity residents at Institution 5 were lower than those at Institutions 4, 3 and 2 (Newman-Keuls test, q = 4.71, p < .01; q = 3.36, p < .05; and q = 3.68, p < .05, respectively). Also, residents at Institution 1 were lower than those at Institution 4 (Newman-Keuls test, q = 3.68, p < .05), and Institution 3 (Newman-Keuls test, q = 3.70, p < .01) on activity (refer to Table 15).

Summary of the Discrimination of the Institutional Samples on the Basis of Predictor and Predicted Variables

Some distinction between the residents of the various homes on important predictors was obtained as was previously mentioned on the variables: housing satisfaction (a marginal distinction), perceived autonomy, sex, and activity (a questionable predictor). However, no distinction between residents of the various institutions was found on

the basis of several other important independent predictors: financial satisfaction, perceived health, self-acceptance, and religiosity.

In terms of the predicted variables the only statistically significant difference occurred for the Free Recall Task, while a difference at the p < .10 level was obtained for the variable, the ABS.

The most atypical resident sample appeared to be those at Institution 5 who were lower on the important discriminating predictor variables and lower on the Free Recall Task. These findings are represented symbolically in Table 16:

TABLE 16

SYMBOLICALLY REPRESENTED INSTITUTIONAL SAMPLE DIFFERENCES ON
INDEPENDENTLY PREDICTIVE VARIABLES AND PREDICTED VARIABLES

Variables	Institutional Sample 1	Institutional Sample 2	Institutional Sample 3	Institutional Sample 4	Institutional Sample 5
Avowed Happiness					
Affect Balance Scale					
Free Recall Task	-5	-4	X		-5
Housing Satisfaction	X	X			-3
Financial Satisfaction					
Perceived Health					
Self-Acceptance					
Religiosity					
Perceived Autonomy	X	X	X	X	-5
Sex	-5	X	X	X	-5
Activity	(-4)	X	*X	*X	-5

Key: —Negative numbers indicate a statistically significant lower mean (the lower the number value, the lower the mean).
   —X's indicate which means are statistically significantly higher than numbered means.
   —* refers to means which are statistically significantly higher than means symbolized by bracketed numbers.

T-test for Two Independent Samples

Since a number of independent predictors of well-being distinguished residents at Institution 5 from those at the other residences, and because this institutional sample population had the lowest means on the ABS and Avowed Happiness variables, while those at Institution 4 had the highest means, further T-tests were performed comparing the two institutional samples on these predicted variables.

Results of the T-test did reveal that residents at Institution 4 were statistically significantly higher on Avowed Happiness ($t = 1.837$, $p < .05$, one tailed test), and the ABS ($t = 2.380$, $p < .025$, one tailed test), than those at Institution 5. A summary of the tests is provided in Table 17.

TABLE 17

SUMMARY TABLE OF T-TESTS OF TWO INDEPENDENT SAMPLES, INSTITUTIONAL SAMPLE 4 VERSUS INSTITUTIONAL SAMPLE 5 ON THE PREDICTED VARIABLES AVOWED HAPPINESS AND THE AFFECT BALANCE SCALE

Institutional Samples	Variable	SS	t	d.f.	Level of Significance
4	ABS	147.9	2.380	58	$p < .025$ one tailed test
5		144.7			
4	Avowed Happiness	34.8	1.837	58	$p < .05$ one tailed test
5		90.7			

CHAPTER IV

DISCUSSION

Predictors of Well-Being

Main effects and interaction effects will be discussed sepa-
rately.

Main Effects

Several variables were found to be independently predictive of
both the Avowed Happiness Scale and the ABS and, overall, the canonical
coefficients from the first canonical variate were quite consistent with
these results. These variables were: housing and financial satisfaction,
supported by two of the highest coefficients on the first canonical vari-
ate of .53 and .25, respectively; self-acceptance (.24 canonical coef-
ficient); and religiosity (.18). Additionally, three other variables were
predictive of the Avowed Happiness Scale but not the ABS: perceived
health (.20 canonical coefficient), perceived autonomy (.05), and sex
(.21). Perceived health explained 2.22 per cent variance in the ABS but
this was not reliable given the number of subjects. A lower importance of
this variable for the ABS could be because, as mentioned in the literature
review, Bradburn (1969) found health to be related to the Negative Affect
Scale and the present subjects were mostly in good health.

Activity (canonical coefficient of .17) was independently
predictive of the ABS, while not predictive of Avowed Happiness (only
1.16% variance for the latter predicted variable). However, a confound-
ing appears to exist in that 5/10 of the items on the ABS are related

to activity (i.e., have you felt particularly excited or interested in something lately; or proud because someone complimented you on something that you <u>had done</u>; or have you felt very lonely or remote from other people recently; or pleased about having <u>accomplished</u> something; or bored). This could partly explain the high relationship between the two variables.

Generally speaking, variables found to be important predictors of well-being in this study were also discovered to be good predictors in other research: i.e., financial satisfaction (or socio-economic status variables), and perceived health (i.e., Spreitzer and Snyder, 1974; Edwards and Klemmack, 1973; Cutler, 1973; Palmore and Luikart, 1972; etc.). Some controversy exists in the literature over which of these two variables is the better predictor of well-being for community residents. Financial satisfaction was the more important predictor in the present study of institutional elderly. Perhaps this occurred because many residents are supported by government and are allotted very minimal allowances for extras. If one is fortunate enough to be able to pay their own expenses and provide themselves with some novel experiences, it is not surprising that they should be happier. Community residents should not be as financially dependent. Also, the health of the present sample was quite good and there is some evidence that health is more important in the prediction of well-being when it is poorer (Bradburn, 1969).

Self-acceptance was also found to be a good predictor in the literature, i.e., for studies using multiple regression analysis (Wolk and Telleen, 1976, for a community sample; and Carp, 1974), and in studies investigating only zero order correlations, for the variable

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mental health (Beiser, 1974; Bradburn, 1969; Cameron, 1975; etc.).

Religiosity also has some support from studies which took into consideration the effects of other predictors (i.e., Moberg, 1956; Edwards and Klemmack, 1973; and Spreitzer and Snyder, 1974), and from research investigating zero order correlations (i.e., O'Reilly and Pembroke, 1956; and Graney, 1975). In terms of housing satisfaction some previous evidence of its importance was noted in studies investigating zero order correlations (i.e., Schonfield, 1973I; Maddox and Eisdorfer, 1962; Schooler, 1975; and Felton and Kahana, 1974). A possible reason for obtaining such strong results for housing satisfaction in the present research for Avowed Happiness may have been because it directly followed the Avowed Happiness rating and was the same type of 7-point scale. However, even though it was not in as close a proximity to the ABS scale and was quite different in form from it, it still accounted for independent variance in the ABS. Institutional life does appear to be rather all encompassing, so one would expect housing satisfaction to be predictive of well-being.

The discovered importance of perceived autonomy is in keeping with the research results of Wolk and Telleen (1976), who used multiple regression analysis and with studies investigating zero order correlations (i.e., Slover, 1972; and Marlow, 1973).

Similar to the results of previous research which took into consideration the effects of other predictors (i.e., Bradburn, 1969; Palmore and Luikart, 1972; Edwards and Klemmack, 1973; and Spreitzer and Snyder, 1974), age was not found to be an independent predictor of well-being.

It was rather surprising that sex was predictive of Avowed Happiness, with women being found to be happier; for controversy exists in the research literature for community residents. Most studies investigating zero order correlations found no sex difference (i.e., Bild and Havighurst, 1976; Chiriboga and Lowenthal, 1971, for a sample aged 18-60 years; and Bradburn, 1969, for subjects 21-60 years). No sex difference was found in two studies utilizing multiple regression analysis (Edwards and Klemmack, 1973; and Palmore and Luikart, 1972). However, two other studies found some evidence that men were happier (Atchley, 1976, with a limited range sample; and Spreitzer and Snyder, 1974, in a study previously criticized for using too large of a sample). Most men living in the community are probably married, while most in institutions are widowed. Some evidence has been accumulated that marriage is more important to a man's well-being than to a women's (Bradburn, 1969). Although older men are provided for in institutions, it could be that they are less satisfied with this care than that which their wives had provided. Elderly women in homes might be happy to have someone else to do the work. There is also some evidence that having a wife as a confidant is more important to a man than vice versa. Having a confidant was predictive of well-being in men, but not in women (Palmore and Luikart, 1972). Women also generally appear to have more activities to occupy their time (i.e., knitting, crafts), whereas men have traditionally been more orientated to outdoor activity and therefore could feel less contented with a more sedentary existence. Men may also be less contented with their possible range of friendships, as generally less men than women reside in the institutions.

The lack of predictability of activity was also somewhat surprising. Most other studies using multiple regression analysis did find an independent effect (i.e., Palmore and Luikart, 1972; Edwards and Klemmack, 1973), as did those studies investigating only zero order correlations (i.e., Graney, 1975; and Beiser, 1974; etc.). However, only one of these studies, Carp (1974), controlled for the effects of mental health and as was previously mentioned in the rationale for the order of entry of variables into the analysis, it is quite possible that a more self-accepting individual would be more active. In the present research, activity and self-acceptance correlated .28 (p < .005), and self-acceptance had a higher zero order correlation with Avowed Happiness than activity (.26 p < .005, versus .21 p < .025). When Carp (1974) controlled for neurotic complaints and nervousness she found that activity explained only .63 per cent variance in well-being, but she did not say if this was a statistically significant amount. She did use too small a sample, however. When Wolk and Telleen (1976) entered self-acceptance before their general activity measure for their community sample, self-acceptance was found to be independently predictive of well-being, while activity was not (they also found self-acceptance had a higher zero order correlation with life satisfaction than did activity, .38 p < .01 versus .16, not statistically significant, respectively).

Some of the other studies found that a very similar per cent of variance explained, as was found for the present study's of 1.16 per cent (not statistically significant for Avowed Happiness) was statistically significant (Palmore and Luikart, 1972; and Spreitzer and Snyder, 1974). This possibly occurred because of their larger sample size. Also, these two studies and the other research study which used multiple

regression analysis by Edwards and Klemmack (1973), did not have larger

zero order correlations between activity and their predicted variable

than that obtained in the present research. Perhaps with a larger

sample, activity would still be independently predictive of well-being

even after controlling for the effects of self-acceptance.

In a pilot study, Stones and Cyr (1976) provided some evidence

for the importance of cognitive ability in the prediction of well-being,

but they did not consider the effects of some important variables. The

lack of predictive ability of this variable in the present research is in

keeping with the results of several researchers (i.e., Jasper, 1930 and

Watson, 1930; who used younger samples, with questionnable generalizability

to the elderly; and Palmore and Luikart, 1972).

Studies of community residents had provided support for a positive

relationship between locus of control and well-being (i.e., Reid and

Zeigler, 1977; and Palmore and Luikart, 1972). However, in the present

study of institutionalized elderly, it was not predictive, whereas per-

ceived autonomy was important. Perhaps persons with higher internal

control avoid institutions for a longer time than do those with lower

internal control. Or perhaps once a person enters an institution the

fact of whether or not they are internally controlled does not determine

the amount of influence they have over their lives as much as does the

amount of allowed autonomy in the home. This is in keeping with the

present results of the predictability of perceived autonomy.

The three objectively derived environmental measures (institutional

quality, activity provision, and religious stress), contrary to the two

subjectively derived variables (housing satisfaction, and perceived

autonomy), were not predictive of well-being. In terms of quality,

perhaps different aspects of the institution are important to different

people so that a global assessment of quality is not appropriate. Or,

perhaps only some of the aspects of quality used in the present research

are important, generally, to well-being. In terms of institutional

activity provision, a person must be well enough (mobility), or motivated

enough to take part in the activity provided, and while activity provi-

sion may increase activity, it appears that activity has the better

potential to predict well-being. Similarly, it is religiosity and not

institutional religious stress which is predictive of well-being. It is

conceivable that if little religious activity is provided by an institu-

tion, that an individual could compensate for this by listening to radio

and television programs, or reading, if they were unable to attend

religious services outside of the institution.

Interaction Effects

Only the interactions used to predict the Avowed Happiness and

the Affect Balance Scale will be discussed. The Free Recall Task, as

will later be considered, does not appear to assess well-being. As

mentioned in the results section, none of the interactions were independ-

ently predictive of these two predicted variables.

Locus of Control by Perceived Autonomy:—The zero order correla-

tion for locus of control by perceived autonomy on Avowed Happiness was

not statistically significant. Locus of control was not independently

predictive of Avowed Happiness and neither was it correlated with

Avowed Happiness. However, perceived autonomy was independently predic-

tive of Avowed Happiness and did correlate with it.

It had been expected that locus of control would have been
independently predictive of well-being. Locus of control was expected
to be a better predictor of well-being under conditions of high per-
ceived autonomy. Under circumstances of high perceived autonomy, an
internally controlled individual should have more freedom to exert con-
trol.

However, as mentioned, locus of control was not important to the
institutionalized person's well-being, even in situations of high per-
ceived autonomy. It could be, as previously discussed, that persons
with higher internal control avoid institutions for a longer time than
do those with lower internal control. Therefore, substantial variability
in locus of control for the institutionalized sample would not be
expected, thereby reducing that variable's predictive ability. Or
perhaps once a person enters an institution the fact of whether or not
they are internally controlled does not determine the amount of influence
that they have over their lives as does the amount of allowed autonomy
in the home.

There was a statistically significant zero order correlation
between locus of control by perceived autonomy for the Affect Balance
Scale (.21 $p < .025$). For this predicted variable locus of control of
reinforcement was almost independently predictive (1.79% variance,
$F = 2.74$, F Critical $= 3.92$). Perceived autonomy while not independently
predictive of the Affect Balance Scale, had a statistically significant
zero order correlation with it (.19 $p < .05$). After the effects of
mainly locus of control, activity and housing satisfaction and, to a
lesser extent, perceived autonomy on the ABS were removed, there no

longer was an interaction effect. It appears that variables which were related to the locus of control by perceived autonomy variable were responsible for its initial zero order correlation with the Affect Balance Scale. These results are probably not as accurate as those achieved for the interaction of locus of control by perceived autonomy on Avowed Happiness, because as will later be discussed, the latter predicted variable was found to be a better measure of well-being.

Religiosity by Institutional Religious Stress:--No statistically significant zero order correlation was found between religiosity and institutional religious stress on either the Avowed Happiness Scale or the ABS. Religiosity was independently predictive of both predicted variables, while institutional religious stress was not at all related.

It appears that religiosity alone is important to determining the elderly person's well-being. Religiosity had been hypothesized to be a stronger predictor of well-being in environments which placed a higher degree of stress on religion (i.e., institutions which had higher religious activity provision and therefore more opportunities for positive affect for the religious person).

However, as was previously mentioned, it is conceivable that, if little religious activity was provided by an institution, an individual could compensate for this by listening to radio and television programs, or reading, if they were unable to attend services outside of the institution. Also, it is possible that persons of the same degree of religiosity, but of different religions, prefer dissimilar amounts of institutional religious stress (i.e., those of the Roman Catholic

church appear to prefer to spend more time, generally speaking, attending church services, masses, etc., than persons of the United Church).

Activity by Institutional Activity Provision:—There was no statistically significant zero order correlation between the interaction of activity by institutional activity provision on Avowed Happiness. Activity approached statistical significance as an independent predictor of Avowed Happiness (1.16% variance, $F = 2.22$, F critical $= 3.92$) and a statistically significant zero order correlation was obtained (.21 $p < .025$). Institutional activity provision was not at all related to Avowed Happiness.

It had been expected that with greater institutional activity provision, there could be greater activity, because it should be easier to be active. Activity was expected to be a better predictor of well-being in a setting where the number of hours of activity provided by an institution was low. It was predicted that persons who were active in situations of low activity provision would, generally speaking, be more energetic than most active persons in the higher activity provision environments, since it would require more initiative to become involved under the former conditions. This energy and consequent activity was expected to be especially related to well-being.

However, activity actually was negatively related to institutional activity provision ($-.24$, $p < .02$), rather than positively correlated, as was expected. There was some evidence that the residents in the homes with the greater activity provision were younger, less mobile, lower in cognitive ability and that there were more men in these homes than in those with lower institutional activity provision. Sherman (1974), had

found that activity could be increased through institutional activity provision, but that the subjects had to have a predisposition for activity. They must also have not reached their saturation point in the amount of activity with which they could cope. In terms of a predisposition, Bradburn (1969) found some association between education and higher activity levels. In the present study, cognitive ability was lower in the less active samples, so this may have been related to a lack of predisposition towards activity. Also as previously mentioned, men could perhaps have less to occupy their time and be less inclined to participate in the types of activity available in the home. There were more men in the residences where the activity level was lower and the institutional activity provision was higher. Additionally, people have to be well enough and mobile enough to take advantage of the institutional activity provision. There is some evidence that residents in the higher activity provision homes were less mobile. Even if their activity levels were increased because of the institutional activity provision, they still were not as high as the activity levels of those in other homes, who had to rely more on their own resources for entertainment.

Therefore, it does not appear to have been easier, as had been expected, for those in homes with higher institutional activity provision to become highly active. These factors, as well as the rather poor predictive ability of both activity and institutional activity provision, probably resulted in the lack of relationship between activity, institutional activity provision and Avowed Happiness.

No statistically significant zero order relationship between activity, institutional activity provision or the Affect Balance Scale

was obtained. Activity was independently predictive of the ABS, while institutional activity provision was only related by zero order correlation (-.18, p < .05).

Predicted Variables

The Avowed Happiness Scale appears to be the best of the three measures of well-being as more of the predictors found to be of importance in the literature were independently predictive of Avowed Happiness than of the ABS. More total variance in Avowed Happiness, 42.49 per cent adjusted variance was explained by predictors, versus 30.44 per cent adjusted variance for the ABS, and only 6.55 per cent variance for the Free Recall Task. Additionally, Avowed Happiness had a coefficient on the first canonical variate of .71, versus .41 for the ABS and .08 for the Free Recall Task. Only cognitive ability and self-acceptance were predictive of the Free Recall Task. The Free Recall Task clearly does not measure well-being, but is perhaps mainly another measure of cognitive ability, as the two scales (The Set Test and the Free Recall Task) seem to require the same skills, memory and verbal fluency (i.e., name as many pleasant events as you can; name as many countries as you can).

One possible confounding with the Avowed Happiness scale in the present research is that of response set (i.e., desirability or a tendency to pick extreme scores), as six out of fourteen measures were assessed on a 7-point rating scale as was Avowed Happiness. However, Avowed Happiness seems to be a more sensitive predicted variable than the ABS. It is correlated with the ABS .48, and shares 23 per cent variance in common. Perhaps Avowed Happiness has an ABS component

(positive and negative present affect), as well as a dispositional factor of well-being (how happy a person has generally been throughout their life) (Stones and Kozma, 1978).

Total Explained Variance

Studies reported in the literature using multiple regression analysis have not made it clear whether or not the total variance that they report is adjusted for their ratio of independent variables to subjects. In the event that they have adjusted their variance, which is unlikely since they do not report it, the amount of variance explained of Avowed Happiness by predictors in the present research exceeds that of most studies. Bull and Aucoin (1975), explained 14 per cent of the variance in well-being; Cutler (1973), accounted for 16 per cent; Carp (1974), 20 per cent; Palmore and Luikart (1972), 24 per cent; Edwards and Klemmack (1973), 24.35 per cent; Spreitzer and Snyder (1974), 32 per cent; and Wolk and Telleen (1976), accounted for 32 per cent variance in well-being for their community sample. These studies accounted for less variance in well-being than the present research even though the ratio of predictor variables to subjects was smaller in the present research than it was in most previous studies.

Two studies report more explained variance. However, it is doubtful if this has been adjusted. Kahana and Kahana (1975) claim to account for 49 per cent of the variance in the PGC, Lawton (1966), with a composite of twelve impulse control measures. If this variance had not been adjusted, the actual total explained variance would be 42 per cent. This is not a convincing result because as was previously discussed, this predicted variable is questionable as its content is very

broad (i.e., it has items concerned with comparisons of: past states
with present ones; oneself with peers; and future-predictions). Also,
as mentioned, it confounds predictors with components of well-being;
has interrelated components; poor reliability, and only moderate validity.
On their second measure they claim to explain 50 per cent variance in an
interviewer rating (if this variance is unadjusted it should actually be
43%). This predicted variable confounds mental intactness (orientation)
and socially appropriate behavior during the interview (morale and
cognitive ability) with predictors (i.e., draw a line test). More in
keeping with appropriate results is their finding of 16 per cent variance
explained of their life satisfaction rating ladder (a non-statistically
significant amount) (4.3% if unadjusted). No controls for the effects
of other predictors were used.

The other study by Wolk and Telleen (1976) explained 46 per cent
variance for an institutional sample on the LSI-A (40% if not adjusted).
This predicted variable has also been previously criticized, having
broad content, interrelated components and questionable validity.
Another problem is that one of the predictors, developmental task
accomplishment, is broad in scope like the predicted variable and con-
fuses several predictor variables, as was previously mentioned. The
equation for the ABS in the present research also explained more, or as
much variance as most other studies.

Adequacy of the Predictors

If the variables that were found to be independent predictors of
well-being in this research also consistently differentiated the five
institutional samples, then one would expect the institutional samples

to be separated on the predicted variables as well.

As it turned out, only a few of the important predictors distinguished between the institutional samples: perceived autonomy, sex, housing satisfaction (to some extent), and activity (a weaker predictor). The sample that was most different was that from Institution 5, statistically significantly lower than at least some of the institutional samples on these variables and having less women than three of the institutions.

There was also some support for residents at Institution 5 being lower on the predicted variables. They were definitely lower on the Free Recall Task (which does not appear to measure well-being) than institutional sample 3; however, the only other differentiation was on the ABS (overall univariate F ratio being $p < .10$). When only the highest and lowest means for both the ABS and Avowed Happiness measures were tested (those for institutional samples 4 and 5, respectively), statistically significant differences were obtained.

Therefore, there was marginal differentiation of institutional samples on independent predictors (with no difference on financial satisfaction, health, self-acceptance, religiosity, and very little separation on housing satisfaction) and appropriately, therefore, only minimal differentiation on the predicted variables.

This consistency of expectations provides further confidence in the predictor variables.

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APPENDIX A

MEASURES USED

An oral presentation was used for all questions in this Appendix.

ITEM #1

Activity

Instructions

1. "What are the activities with which you are involved, on a usual day (i.e., visiting, straightening your room, etc.)?"

2. "How long do you spend at each of these activities on a usual day?"

3. "Do you have any special events or appointments coming up in the next week, things that you don't do every day (i.e., play Bingo, attend church services, have family visits, etc.)?"
"Approximately how long will you be involved in each event?"

Score Calculation

The total activity score was the number of hours accounted for on a usual day (activities other than sleeping or resting), plus the number of hours to be spent during the coming week with special events.

ITEM #2

The Jessor Internal-External Locus of Control of Reinforcement Scale

Instructions

1. "Would you say that most of the things that happened to you in your life happened because of luck, or as a result of something that you did?"

2. "Would you say that you mind, if you are kept waiting?"

3. "When you make plans, are you almost certain that you can make them work?"

4. "Do you spend much time thinking about the past?"

5. "Do you like to do things on the spur of the moment or do you prefer to have things planned out in advance?"

6. "Do you think that it's worth doing some things, even if they're not pleasant in order to get what you want later on; or do you think that it's better to do what you want to do when you feel like doing it?"

7. "When you are right about something, can you usually convince others that you are right?"

ITEM #3

Perceived Health Rating

Instructions

"Would you say that your health is good or not too good?"

The answer to this question determined to which half of the 7-point scale residents were assigned and what further questions they were asked. If they said that their health was good, they were then asked:

"Would you say that your health is the best possible health, good health, or a little on the good side?"

If they said that their health was not too good they were asked:

"Is it the worst possible health, poor health, or a little on the poor side?"

An intermediate score of 4 was reserved for those who felt that their personal health was in between the good and poor ratings.

1	2	3	4	5	6	7
Worst Possible Health	Poor Health	A Little on the Poor Side	Neither Good nor Poor Health	A Little on the Good Side	Good Health	Best Possible Health

ITEM #4

Self-Perceived Religiosity

Instructions

"Would you say that you are a religious person?"

As in the derivation of the perceived health rating, subjects were asked further questions depending on their answer, to obtain the actual score.

```
|-------|-------|-------|-------|-------|-------|
1       2       3       4       5       6       7
```

1	2	3	4	5	6	7
Very Non Religious	Non Religious	A Little on the Non Religious Side	Neither Religious nor Non Religious	A Little on the Religious Side	Religious	Very Religious
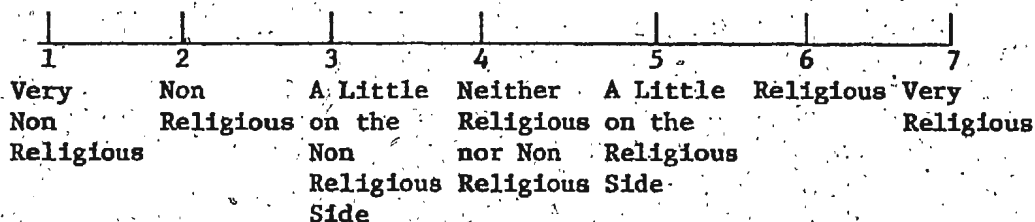
ITEM #5

Avowed Happiness

Instructions

"Would you say that you are happy or not too happy?"

Again, depending on their answer, further questions were asked as in the perceived health rating.

```
|-------|-------|-------|-------|-------|-------|
1       2       3       4       5       6       7
```

1	2	3	4	5	6	7
Very Unhappy	Mostly Unhappy	A Little on the Unhappy Side	Neither Happy nor Unhappy	A Little on the Happy Side	Mostly Happy	Very Happy
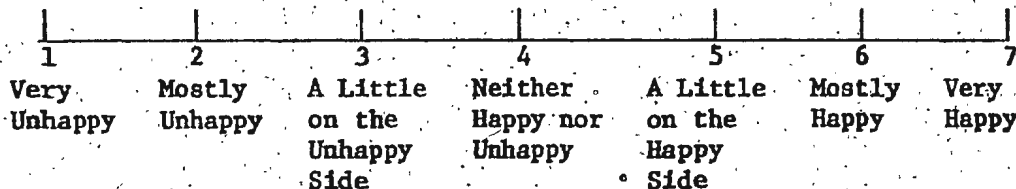
ITEM #6

Housing Satisfaction

Instructions

"Would you say that you are satisfied or not too satisfied with your residence?"

As in the perceived health rating further questions were asked

depending on the person's reply to this question.

1	2	3	4	5	6	7
Completely Dis- satisfied	Mostly Dis- satisfied	A Little on the Dis- satisfied side	Neither Satisfied nor Dis- satisfied	A Little on the Satisfied Side	Mostly Satisfied	Completely Satisfied

ITEM #7

Perceived Autonomy

The following questions were each assessed on a 7-point scale

illustrated below in a manner similar to that used for the perceived

health rating. A maximum of 42 points could have been scored.

1	2	3	4	5	6	7
Completely False	Mostly False	Somewhat More False than True	Neither True nor False	Somewhat more True than False	Mostly True	Completely True

Instructions

1. "Would you say that the rules here keep you from doing the things that you want to do?"

2. "Would you say that living here makes a person dependent upon others?"

3. "Would you say that residents here are asked for their advice when changes are planned and carried out by the administrators?"

4. "Do residents here have free access to facilities and grounds?"

5. "Does the staff here respond to residents' requests?"

6. "If a resident has a problem, can he usually solve it by taking the initiative?"

ITEM #8

The Affect Balance Scale

Instructions

"During the past month[1] did you ever feel . . .

*1) Particularly excited or interested in something?
-2) So restless that you couldn't sit long in a chair?
*3) Proud because someone complimented you on something you had done?
-4) Very lonely or remote from other people?
*5) Pleased about having accomplished something?
-6) Bored?
*7) On top of the world?
-8) Depressed or very unhappy?
*9) That things were going your way?
-10) Upset because someone criticized you?"

[1]Instead of "past month", Bradburn (1969) used the term "past few weeks". Past month is preferred for present purposes, since it defines a relevant time period more precisely.

Key: * These items form the Positive Affect Scale (PAS).
      - These items comprise the Negative Affect Scale (NAS).

ITEM #9

The Free Recall Task of Pleasant and Unpleasant Experiences

Instructions

1. "Could you tell me some pleasant events that have happened to you during the past month?"

2. "Could you tell me some unpleasant events that have happened to you in the past month?"

Administration

Seven minutes were allowed for recall from each category.

ITEM #10

Financial Satisfaction

Instructions

"Would you say that you are satisfied with finances or not?"

Depending on the person's answer, as with the perceived health question further inquiries were made.

1	2	3	4	5	6	7
Completely Dis- satisfied	Mostly Dis- satisfied	A Little on the Dis- satisfied Side	Neither Satisfied nor Dis- satisfied satisfied	A Little on the Satisfied Side	Mostly Satisfied	Completely Satisfied

ITEM #11

Self-Acceptance

Each of the following items were rated on the 7-point scale indicated below. Scores were obtained in a manner similar to that for the perceived health question.

1	2	3	4	5	6	7
Completely False	Mostly False	Somewhat more False than True	Neither True nor False	Somewhat more True than False	Mostly True	Completely True

Instructions

1. "Would you like it if you could find someone who would help you to solve personal problems?"

2. "Would you say that most of the feelings and impulses that you have towards other people are quite ordinary feelings?"

3. "Would you say that you feel different from other people or pretty much like everyone else?"

4. "Are you afraid for people to find out what you are really like?"

5. "Are you shy in social situations?"

6. "Would you say that you have a real inner strength?"

7. "Do you feel self-conscious when you are with people who have a superior position to yours in business or at school?"

8. "Do you worry about things much or not too much at all?"

9. "Would you say that you can't avoid feeling guilty about the way you feel about certain people in your life?"

10. "Do you ever put on a show to impress people?"

11. "If you had a problem would you deal with it right away or try to put off thinking about it?"

12. "If you had to give a speech would you be nervous?"

ITEM #12

Modified Set Test

Instructions

"I would like you to tell me the names of as many (countries) as you can think of. Go ahead . . . ."

Categories

Countries
Parts of human body
Four-footed animals
Fruits
Parts of house

Procedure

Time allowed for generation from each category was 40 seconds.

Score was the total number of instances generated.

N.B. Based on the set test of Isaacs and Akhtar (1972). The categories are of equal potency according to the Baltig and Montague (1969) norms (i.e., Journal of Experimental Psychology Monographs, 80 1).

Institutional Quality

The following questions were asked of each administrator of each institution:

Instructions

1. "How many residents do you have in this institution?"
   "Do you have single, double, etc. rooms?"
   "How many of each of these different types of rooms do you have?"

   The percentage of the population in each of the different types of rooms was calculated. A higher score was awarded institutions allowing the greater amount of privacy (score range-- 1-15).

2. "Do you have kitchen facilities available for residents' independent use (i.e., fridge, kettle, sink)?"
   "How many of these units do you have?"

   The proportion of residents to kitchen units was calculated (score range-- 0-6).

3. "Do you have gardening space for your residents?" (score range-- 0-1).

4. "Do you have any guest rooms?" (score range-- 0-2).

5. "Do you have laundry facilities available for those who would like to do their own washing?" (score range-- 0-3).

6. "Do you have a visiting hairdresser and barber?"
   "Are their services provided free of charge to residents?"
   (score range-- 0-6).

7. "How many professional staff do you have?"

A professional staff to patient ratio was then calculated (score range-- 1-4).

8. "Do you have a chapel?" (score range-- 0-2).

9. "How many bathrooms do you have?"

The ratio of people per bathroom facility was calculated (score range-- 1-6).

10. "Do you have hobby shops or occupational therapy programs for men and women?" (score range-- 0-3).

11. "Do you have such safety features as: a sprinkler system, grab bars along the walls and in the toilet area, bath mats and fire escapes?" (score range-- 1-3).

12. "Do you have a libaray?" (score range-- 0-1).

13. "What type of communication or intercom system do you have for residents' use?" (score range-- 1-3).

14. "Are residents allowed to smoke in their rooms?"

This item was scored in terms of safety precautions employed (score range-- 0-3).

15. "How many phones are provided by the institution for residents' use?"

The proportion of residents to phones was calculated (score range-- 1-4).

16. "Are males and females segregated by sections?"

This was believed to hinder social interaction, thus a higher score was given to less segregated homes (score range-- 0-2).

17. "How convenient is transportation for residents?"
"Do you have: readily accessible bus routes; free taxies; stores located in close proximity; easily operated elevators; a location on flat terrain; an institution-owned bus?" (score range-- 1-13).

18. "How easy is it for residents to visit a doctor or a dentist?" (score range-- 0-2).

19. "Do you have a professional counsellor on staff?" (score range-- 0-3).

20. "Do residents have thermostats in their rooms?" (score range-- 0-4).

21. "What is your per diem rate?" (score range-- 1-4).

22. "Do you have an auditorium or a large room where all residents could be seated?" (score range-- 0-2).

23. "Do you have such facilities so that a resident could make a private telephone call?" (score range-- 0-3).

24. "How many television sets are provided by the institution for resident use?"

A proportion of sets to residents was calculated (score range-- 1-5).

25. "How many resident lounges have you?"

The number of persons per lounge was calculated for each institution (score range-- 1-4).

An additional six areas were rated by the researcher for each institution:

26. Institutional Cleanliness (score range-- 1-3).

27. Noise Level (score range-- 0-3).

28. Colourfulness and Cheerfulness of the Physical Surroundings (score range-- 0-3).

29. Quality of the Meals (this information was obtained from residents) (score range-- 0-2).

30. Provision of Windows (score range-- 0-3).

31. Cosiness of the Home (score range-- 0-3).

APPENDIX B

ZERO ORDER CORRELATIONS

ZERO ORDER CORRELATIONS OF ALL PREDICTED AND PREDICTOR VARIABLES

	The Affect Balance Scale	Free Recall Task	Avowed Happiness	Perceived Health	Cognitive Ability	Locus of Control	Financial Satisfaction	Self-Acceptance	Activity	Perceived Autonomy
Affect Balance Scale	1.000	.149	**** .481	.149	.073	.156	**** .324	**** .302	**** .395	* .187
Free Recall Task	.149	1.000	.074	-.062	**** .251	.036	.018	* .183	.160	.145
Avowed Happiness	**** .481	.074	1.000	**** .274	.000	.026	**** .355	**** .264	** .205	**** .267
Perceived Health	.149	-.062	**** .274	1.000	-.033	.043	.103	.074	-.001	.071
Cognitive Ability	.073	*** .251	.000	-.033	1.000	**** .257	-.077	.062	**** .391	* .230
Locus of Control	.156	.036	.026	.043	**** .257	1.000	-.002	.081	*** .235	.048
Financial Satisfaction	**** .324	.018	**** .355	.103	-.077	-.002	1.000	.024	.120	.104
Self-Acceptance	**** .302	* .183	**** .264	.074	.062	.081	.024	1.000	**** .282	.111
Activity	**** .395	.160	** .205	-.001	**** .391	*** .255	.120	**** .282	1.000	**** .315
Perceived Autonomy	* .187	.145	**** .267	.071	** .230	.048	.104	.111	**** .315	1.000

	The Affect Balance Scale	Free Recall Task	Avowed Happiness	Perceived Health	Cognitive Ability	Locus of Control	Financial Satisfaction	Self-Acceptance	Activity	Perceived Autonomy
Religiosity	.169*	.100	.209**	-.087	.009	.090	-.049	.071	.078	.057
Institutional Quality	.048	.144	.010	.094	.063	-.021	-.078	-.071	.045	.046
Institutional Activity Provision	-.181*	-.276xxx	-.106	-.025	-.235xx	-.007	.015	-.053	-.235x	-.276***
Sex	.194	.108	.231xx	.001	.017	-.194*	.074	-.029	.115	.075
Institutional Religious Stress	-.032	-.182	.012	-.047	-.044	-.026	.082	.086	-.021	.055
Housing Satisfaction	.406****	.029	.609****	.183*	.018	-.006	.400****	.213**	.180*	.333****
Age	.038	.032	.231xx	.169	-.082	-.084	.120	.008	-.057	.082
Locus of Control x Perceived Autonomy	.210**	.086	.105	.066	.313****	.959****	.041	.111	.313****	.306****
Activity x Institutional Activity Provision	.018	-.177xxx	.031	.004	-.006	.096	.035	.090	.310xxx	-.122
Religiosity x Institutional Religious Stress	-.009	-.169	.055	-.054	-.058	-.051	.065	.097	.005	.078

Key: One-Tailed Test: *p <.05; **p <.025; ***p < .01; ****p < .005.
Two-Tailed Test: xp <.05; xxp <.02; xxxp < .01.

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	Religiosity	Institutional Quality	Institutional Activity Provision	Sex	Institutional Religious Stress	Housing Satisfaction	Age	Locus of Control x Perceived Autonomy	Activity x Institutional Activity Provision	Religiosity x Institutional Religious Stress
Affect Balance Scale	.169*	.048	-.180*	.194	-.032	.406****	.038	.210**	.018	-.009
Free Recall Task	.100	.144	-.276xxx	.108	-.182	.029	.032	.086	-.177xxx	-.169
Avowed Happiness	.209**	.010	-.106	.231xx	.012	.609****	.231xx	.105	.031	.055
Perceived Health	-.087	.094	-.025	.001	-.047	.183*	.169	.066	.004	-.054
Cognitive Ability	.009	.063	-.235xx	.017	-.044	-.018	-.082	.313****	.006	-.058
Locus of Control	-.090	-.021	-.007	-.194*	-.026	-.006	-.084	.959****	.096	-.051
Financial Satisfaction	-.049	-.078	.015	.074	.082	.400****	.120	.041	.035	.065
Self-Acceptance	.071	-.071	-.053	-.029	.086	.213**	.008	.111	.090	.097
Activity	.078	.045	-.235xx	.115	-.021	.180*	-.057	.313****	.310****	.005
Perceived Autonomy	.057	.046	-.276xxx	.075	.055	.333****	.082	.306****	-.122	.078
Religiosity	1.000	-.138	-.084	-.243***	-.145	.144	.073	-.071	.010	.006
Institutional Quality	.138	1.000	-.739xxx	.270***	-.766xxx	-.086	.169	-.006	-.658xxx	-.747xxx

	Religiosity	Institutional Quality	Institutional Activity Provision	Sex	Institutional Religious Stress	Housing Satisfaction	Age	Locus of Control x Perceived Autonomy	Activity x Institutional Activity Provision	Religiosity x Institutional Religious Stress
Institutional Activity Provision	-.084	xxx -.739	1.000	xxx -.360	xxx .607	-.059	xxx -.288	-.084	**** .764	xxx .592
Sex	*** .243	xxx .270	xxx -.360	1.000	x -.229	.127	.044	-.150	xx -.247	-.194
Institutional Religious Stress	-.145	xxx -.766	.607	x -.229	1.000	.157	x -.218	-.019	xxx .589	**** .980
Housing Satisfaction	.144	-.086	-.059	.127	.157	1.000	.188	-.105	.061	** .197
Age	.073	.169	xxx -.288	.044	x -.218	.188	1.000	-.067	xxx -.275	x -.200
Locus of Control x Perceived Autonomy	-.071	-.006	-.084	-.150	-.019	.105	-.067	1.000	.052	-.036
Activity x Institutional Activity Provision	.010	xxx -.658	xxx .764	xx -.247	xxx .589	.061	xxx -.275	.052	1.000	xxx .604
Religiosity x Institutional Religious Stress	.006	xxx -.747	xxx .592	-.199	**** .980	** .197	x -.200	-.036	xxx .604	1.000

Key: One-Tailed Test: *p < .05; **p < .025; ***p < .01; ****p < .005.
Two-Tailed Test: ^{x}p < .05; ^{xx}p < .02; ^{xxx}p < .01

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