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LOCUS OF CONTROL, ACTIVITY LEVEL, AND LIVING SITUATION AMONG
THE ELDERLY

by

Jennifer L. Birchenough

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Science
Department of Occupational Therapy

Western Michigan University
Kalamazoo, Michigan
December 1997

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1997

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Jennifer L. Birchenough

LOCUS OF CONTROL, ACTIVITY LEVEL, AND LIVING SITUATION AMONG THE ELDERLY

Jennifer L. Birchenough, M.S.

Western Michigan University, 1997

The focus of this study was to investigate the relationships among locus of control, activity level, and living situation in the elderly. The participants in this study consisted of 62 elderly individuals who resided in one of three living situations: (1) independent living, (2) assisted living, and (3) comprehensive care centers. All participants were screened for cognitive status using the Mini-Mental State Assessment (Folstein, M., Folstein, S., & McHugh, 1975). Individuals who scored in the normal range then completed a Locus of Control Scale (Rotter, 1966) and the Index of Occupational Behavior (Gregory, 1983) to address the meaningfulness of, and frequency of participation in, activities. Demographic information, such as age and length of stay in the current living situation, was also collected from each participant.

Individuals who resided in independent living were found to possess a more internal locus of control and to engage in more occupational behavior than individuals in assisted living and in comprehensive care. Possible explanations for these findings and the importance of these relationships for the field of occupational therapy were discussed.

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CHAPTER I

INTRODUCTION

Locus of control is the extent to which one believes one is capable of influencing situational and life events. According to Rotter (1966), an individual's locus of control may be conceptualized as falling on a continuum between internal and external. Individuals who possess an internal locus of control believe that situational events are contingent upon their behavior and attributable to relatively stable characteristics. Individuals with an external locus of control attribute situational events to forces outside of themselves and beyond their control. For example, when analyzing the same situation, an individual with an internal locus of control might perceive the outcome as contingent upon his or her ability, whereas an individual with an external locus of control might perceive the outcome as a result of luck, fate, or chance. Locus of control has been correlated with various characteristics such as age (Lachman, 1986), health (Hunter, Linn, Harris, & Pratt, 1980), activity level (Lumpkin, 1985), adjustment and life satisfaction (Teitelman & Priddy, 1988), and institutionalization (Beck, 1982).

A clearer understanding of the locus of control construct may be beneficial to the field of occupational therapy. Individuals who possess an internal locus of control believe that they are capable of influencing and creating change within the environment. An individual with a more internal locus of control may appear more motivated and concerned with treatment as he or she feels as if his or her actions will have an impact on the environment.

Conversely, individuals with a more external locus of control perceive themselves as being acted upon by the environment. An individual with a more external locus of control does not perceive himself or herself as an agent of change, and may consequently be less motivated for treatment.

Locus of control is especially important for elderly individuals. Retirement and advancing age may result in a decline in control (Schultz, 1976). Furthermore, if an individual is faced with a transition into an assisted living or care facility, he or she may perceive an even greater loss of control (Arling, Harkins, & Capitman, 1986). As a result of the perceived lack of control, the individual may experience withdrawal and depression (Schultz & Alderman, 1974). Occupational therapy, in continuing to engage individuals in personally meaningful occupations, may help maintain or restore a sense of control for elderly individuals. The maintenance of this sense of control may contribute to adaptive behaviors and improved psychosocial functioning. Consequently, the purpose of this study is to further investigate the relationship between the locus of control construct, activity level, and living situation for elderly individuals and to discuss the implications of this relationship for occupational therapists.

CHAPTER II

LITERATURE REVIEW

Locus of Control

Theoretical Background

The locus of control construct is derived from social learning theory (Rotter, 1954, 1955). According to social learning theory, a reinforcement strengthens the expectancy that a specific behavior or action will be followed by a reinforcement in future situations. Once the individual develops an expectancy for a particular reinforcement to follow a certain behavior, failure of the reinforcement to occur may reduce the expectancy. However, through life experiences, an individual may determine that the pattern of reinforcement is not dependent upon his or her behaviors. Therefore, an individual's history of reinforcement, and his or her interpretation of the contingency of reinforcement, may result in a difference in the degree to which an individual attributes reinforcements to his or her own actions (Rotter, 1966). This difference, when generalized over situations, may result in the adoption of an internal (i.e., "the consequences I receive are contingent upon my behaviors and actions") or external (i.e., "the consequences I receive are the result of luck or fate, and have nothing to do with my behaviors or actions") locus of control. To index this generalized expectancy, or "*belief* about the nature of the world" (p. 10), Rotter (1966) developed the Internal-External Locus of Control Scale.

Stability of Locus of Control

Rotter (1966) initially proposed the locus of control construct as a global or generalized trait. Hence, by definition, an individual's locus of control should be expected to remain consistent across situations and stable over time. Nevertheless, evidence suggests that one's locus of control may be altered (Lefcourt, 1982; Crandall, Katkovsky, & Crandall, 1965). In response to these studies, Rotter (1975) acknowledged that one's locus of control may change under different situational conditions.

Locus of Control and Age

The original research (Rotter, 1966) was conducted using college students enrolled in an introductory psychology course. Since the proposition of the locus of control construct, many researchers have attempted to determine if age-related changes in locus of control orientation occur. Some researchers report that no locus of control orientation shift occurs in later life (Andrisani, 1978; Bradley & Webb, 1976; Kuypers, 1972; Nehrke, Hulicka, & Morganti, 1980) and many studies have found no greater percentage of externals among the elderly than among other adults (Duke, Shaheen, & Nowicki, 1974) and no decline in internality in old age (Ryckman & Malikiosi, 1975). There is support, however, for internality decreasing with increasing age (Lachman, 1983) as well as for internality increasing with advancing age (Lachman, 1985; Staats, 1974; Strickland & Shaffer, 1971; Wolk & Kurtz, 1975). Lachman (1986) examined the research concerning age differences (or changes) in locus of control orientation and determined that it is difficult to reach a consensus concerning age-related locus of control orientation changes. There may be several explanations for the discrepancy in findings, including differences in study design, measurement instruments, and sample

composition (Lachman, 1986, p. 211; Siegler & Gatz, 1985). Other subject variables, such as health, activity level, and living situation, could also account for the changes in locus of control orientation.

Locus of Control and Health

Many individuals experience physical decline and become increasingly dependent with increasing age. This decline and resulting dependence could lead one to expect that individuals might adopt a more external locus of control as health declines. Empirical data suggest that an external locus of control is associated with poorer health status (Brothen & Detzner, 1983; Hunter et al., 1980; Lumpkin, 1985). Furthermore, control is positively correlated with health for community residents (Ziegler & Reid, 1979). However, it must be noted that, as with the majority of studies examining locus of control orientation, the evidence is correlational - not causal - in nature. Brothen and Detzner (1983) comment upon the possible implications of these findings, "If this decline [in health] results in a tendency for them to make external attributions for their fate, it has implications for how they adapt to the aging process" (p. 946).

Locus of Control and Activity Level

Intuitively, one might also assume that individuals become less active with advancing age; this decrease in activity level may be associated with an external locus of control. Lumpkin (1985) postulates, "If elderly persons could not take part in community or social activities or were limited by transportation, it seems likely they would feel less in control" (p. 288). Research suggests that activity is negatively correlated with external locus of control (Hunter et al., 1980; Kuypers, 1971; Lumpkin, 1985; Wolk & Kurtz, 1975) and positively correlated with life satisfaction

(Markides & Martin, 1979; Palmore & Kivett, 1977). Lumpkin (1985) concludes:

If elderly people are forced to reduce their activity (i.e., moved into institutions and away from their friends or relatives, or by outliving their friends, losing their transportation, insufficient income, etc.), they may become externally oriented even if they are in good health. (p. 288)

Locus of Control, Adjustment, and Life Satisfaction

Teitelman and Priddy (1988) suggest, “perceptions of uncontrollability potentially pose a major threat to the mental health of older individuals” (p. 302).

Internal locus of control is a predictor of high morale and is associated with high levels of life satisfaction (Fawcett, Stonner, & Zepelin, 1980; Nehrke, Bellucci, & Gabriel, 1977; Palmore & Luikart, 1972), good coping skills, reality orientation, and adaptive behavior (Kuypers, 1972). Internal locus of control is also associated with a positive self-concept (Kivett, Watson, & Busch, 1977; Kuypers, 1971; Reid, Haas, & Hawkings, 1977) and has been positively correlated with level of psychological adjustment (Zeigler & Reid, 1979), involvement, and emotional adaptation (Wolk & Kurtz, 1975). Conversely, an external locus of control has been associated with a lowered self-esteem (Maccoby, 1980) and defensive and fearful behaviors (Kuypers, 1971). Fawcett et al. (1980) conclude, “the literature suggest that internality is positively associated with social involvement, high morale, and good coping skills” (p. 14).

Contrary to the preceding studies which associate an internal locus of control with adaptive behaviors, Felton and Kahana (1974) reported that individuals with a more external locus of control adjusted better to an institutional setting. This study utilized a measurement method quite different from Rotter’s (1966) Internal-External Locus of Control Scale. Reid et al. (1977) reflected upon the use of the different measurement instrument and concluded, “the results with the Kahana and Felton locus

of control instrument therefore appear equivocal and inconclusive” (p. 442). White and Janson (1986) offer an alternate interpretation of the results of the Felton and Kahana (1974) study and suggest that cessation of efforts to control a nursing home environment may actually be an adaptive response in certain situations.

Locus of Control and Institutionalization

There is a positive correlation between length of stay in an institutional setting and external locus of control (Kish, Solberg, & Uecker, 1971). Living in an institution may contribute to a decrease in one’s control over the environment (Beck, 1982; Coleman, 1984; Rodin, 1986; Teitelman & Priddy, 1988). This decrease in control may further result in the adoption of a more external locus of control (Lumpkin, 1985; Solomon, 1990). Some research suggests that the process of institutionalization itself may result in a decrease in perceived control (Arling et al., 1986).

Schultz (1976) suggested that although people strive to control their environment throughout their lifespan, “retirement and old age precipitate an abrupt decline in control” (p. 563). This decline in control may be the result of the loss of the worker and/or child-rearing role. It is believed institutionalization may lessen the ability to influence and control the environment. For example, individuals who resided in nursing homes were significantly more externally controlled than individuals who lived independently in the community (Nehrke, Bellucci, & Gabriel, 1977). Conversely, Morrison (1994) found no significant differences in locus of control orientation between institutionalized and non-institutionalized elderly individuals.

Manipulations of Control

As the result of an empirical manipulation, residents of a senior housing unit who were encouraged to increase their control over living arrangements (e.g.,

participate in decision-making and advocate for their own needs) reported a significant increase in psychological well-being (Berkowitz, Waxman, & Yaffe, 1988). Empirical data also suggest that the occurrence of predictable and controllable events has a positive impact on physical and psychological health and increases the activity level of institutionalized residents (Schultz, 1976). In a follow-up study, Schultz and Hanusa (1978) reflected upon the earlier study (Schultz, 1976) and concluded:

Some of the negative consequences of aging may be mediated by increased unpredictability and uncontrollability and to the extent that aged individuals are able to maintain a predictable and controllable environment, they should experience relatively less physical and psychological deterioration with increasing age. (p. 1195)

Langer and Rodin (1976) postulated, "The ability to sustain a sense of personal control in old age may be greatly influenced by societal factors, and this in turn may affect one's physical well-being" (p. 191). Individuals who were encouraged to assume enhanced responsibility (i.e., those given the opportunity to make more choices, take more responsibility, and feel more in control of daily events) demonstrated increased alertness, a higher activity level, and greater happiness.

The provision of increased control and choice resulted in less hopelessness, an increased level of activity, and improved psychosocial functioning for nursing home residents (Mercer & Kane, 1979). Increased control also led to a more cohesive social environment, improved resident functioning, and more positive perceptions of the environment by both the residents and by outside observers in community and institutional settings (Moos & Igra, 1981; Moos, 1981). Elderly individuals who felt that they were able to control how they responded to changes associated with the aging process rated themselves higher on indices of well-being and self-esteem than did individuals who felt that aging and the resultant decreased functional abilities are uncontrollable processes (Gergen, M. & Gergen, K., 1986).

Ramifications of Control Manipulations

In an attempt to understand the ramifications of control manipulations, Schultz and Hanusa (1978) conducted a follow-up study to address the impact of the Schultz (1976) study. No positive long-term effects resulted from participation in the experimentally enhanced control and predictability conditions in the Schultz study. Furthermore, individuals who had participated in the enhanced predictability and control conditions exhibited a decline from the pre-experimental conditions in physical and psychosocial health once the experiment was terminated, whereas individuals in the non-experimental groups remained stable (Schultz & Hanusa, 1978).

Rodin and Langer (1977) also attempted to determine the long-term effects of an enhanced-control intervention (Langer & Rodin, 1976). In contrast to the negative effects of the Schultz (1976) manipulation, Rodin and Langer (1977) determined that the residents in the enhanced responsibility group in the Langer and Rodin (1976) manipulated control research maintained higher health and activity levels, exhibited a more positive mood, demonstrated increased sociability, and had lower mortality rates than the decreased responsibility group and the no-treatment group. Rodin and Langer (1977) suggest, “decline can be slowed or, with a stronger intervention, perhaps can even be reversed by manipulations that provide an increased sense of effectance in the institutionalized elderly” (p. 901).

Conclusions Concerning Locus of Control and Institutionalization

Beck (1982) summarized research which examined the issue of control among the institutionalized aged (Langer & Rodin, 1976; Rodin & Langer, 1977) and concluded:

The aversive consequences that result from the absence of control, from environments that lack incentives, and from mindless thoughts and behaviors are only a few of the many ways in which social conditions can foster what may appear as inevitable consequences of aging. (p. 383)

Learned Helplessness

Theoretical Background

In addition to locus of control, learned helplessness is another psychological construct that has received a great deal of attention concerning its implications for elderly individuals. The construct of learned helplessness was first proposed by Seligman (1975). Seligman suggested that certain psychological and social circumstances may prevent an individual from having choice or control over his or her own destiny, and the individual may learn that efforts to manipulate the environment are ineffectual. Teitelman and Priddy (1988) further explain, "This realization of nonrelatedness (noncontingency) between personal response and environmental outcome leads to a learned state of 'helplessness'" (p. 299). Helplessness allows an individual to conserve psychological energy and gain whatever rewards and reinforcements may be available in the environment (Solomon, 1990).

Learned Helplessness and Locus of Control

Helplessness results in diminished motivation to initiate actions or even respond to the environment, a decrease in overall cognitive functioning, and an overall negative affect, which may be associated with listlessness, withdrawal, and apathy (Seligman, 1975). Learned helplessness may be further manifested through decreased activity levels and an increased mortality rate (Mercer & Kane, 1979). Decreased activity levels

are also associated with an external locus of control (Hunter et al., 1980; Kuypers, 1971; Lumpkin, 1985; Wolk & Kurtz, 1975). In addition, helplessness and dependency are positively correlated with an external locus of control (Rotter, 1966).

Solomon (1990) concludes:

Once in a state of helplessness, the individual develops an apathetic, amotivational state. Hopelessness, helplessness, anxiety, depressed mood, powerlessness, diminished life satisfaction, poor morale, and alienation are frequent concomitants of this state of helplessness. Over one hundred published studies have supported these relationships among depression, helplessness, and *locus of control* [italics added] in the elderly. (p. 39)

Implications for Occupational Therapy

A fuller understanding of the implications of the locus of control construct may be beneficial for the field of occupational therapy. Locus of control is a component of the organismic models of occupational therapy (Reed, 1984). The organismic models include the Model of Human Occupation as well as occupational behavior and developmental models.

Locus of control is included in the Model of Human Occupation (Keilhofner, 1992) as a component of the volition subsystem. According to Keilhofner (1992), volition encompasses “humans’ universal need to explore their environments and to achieve mastery over tasks and the course of their lives” (p. 156). Furthermore, the volition subsystem consists of personal causation, values, and interests. The concept of personal causation, which Keilhofner (1992) defines as, “an individual’s beliefs about his or her effectiveness” (p. 157), may be equated with the locus of control construct. Keilhofner further explains the importance of an individual’s personal causation in the therapeutic setting:

If an individual feels externally controlled and unskilled, he or she may tend to avoid participation in occupations in order to avert failure, but will grow increasingly helpless and fearful. On the other hand, an individual who has a belief in internal control and skill will tend to seek out opportunities and to take calculated risks in order to achieve. As a result, this person will learn and grow. (p. 157)

This motivation for achievement is included in occupational behavior's provision, "man has a need to master his environment, to alter and improve it" (Reed, 1984, p. 98). This drive for competence is also reflected in Llorens' (1970) description of occupational therapy as, "a facilitation process which assists the individual in achieving *mastery* [italics added] of life tasks and the ability to cope as efficiently as possible with the life expectations made of him" (p. 93).

Thus, locus of control is an important construct for the field of occupational therapy. Although it has received overt attention in only a few models of practice, it is tacitly understood to be an integral component of any treatment session that utilizes an organismic, versus a mechanistic, approach. That is, for an individual to engage in a meaningful (purposeful) activity, the individual must feel as if he or she can actively have an effect on his or her environment. This perception of the ability to actively influence the environment is similar to possessing an internal locus of control. If occupational therapy can continue to provide an individual with meaningful activities that allow the individual to maintain a sense of control and accomplishment even when faced with institutionalization and a potential loss of former life roles, perhaps this will serve to strengthen or reinforce the individual's internal locus of control. The maintenance of an internal locus of control may contribute to the development and utilization of the adaptive behaviors and coping skills necessary to deal effectively with life and situational events. Hence, it is beneficial for the field of occupational therapy to better understand the relationship between locus of control, age, activity level, and living situation.

CHAPTER III

METHOD

Project Description

The research protocol for this project was submitted to the Human Subjects Institutional Review Board of Western Michigan University and approval was originally given on November 20, 1996. Approval for additional research sites was granted on March 20, 1997, April 20, 1997, and May 15, 1997 (see Appendix A).

Subjects

Participants in this study consisted of 62 individuals who resided in Southwestern Michigan and Northern Indiana. All participants were residents of independent living apartments, assisted living apartments, or comprehensive care facilities. The participants for this study were recruited from three independent living apartment communities, two assisted living facilities, and three comprehensive care facilities. Independent living is operationally defined as a housing complex that is allocated for senior citizens. The housing complex may also offer linen services and provide at least one meal per day. Assisted living communities provide private rooms or apartments, three meals per day, assistance with personal care tasks, and nursing services to assist with medication. A comprehensive care facility offers 24-hour skilled nursing care and specialized rehabilitation programs including physical, occupational, and speech therapy. Administrators from each facility granted permission for the research to be conducted at the respective sites (see Appendix B).

Subjects who resided in the assisted living and comprehensive care facilities were recommended by the Activities Director or the Rehabilitation Services Director. The Directors were asked to recommend individuals who were able to complete questionnaires in written form (with enlarged type) and could attend to the researcher for 45 minutes. In the independent living communities, flyers were posted on the community bulletin boards at the respective sites, and participants informed the Activities Director of their willingness to participate. All interviews were conducted in the participants' rooms/apartments, or in a central location within the facility such as the activity room or dining room.

Instrumentation

Mini-Mental State Assessment

The Mini-Mental State assessment (Folstein, M., Folstein, S., & McHugh, 1975; see Appendix C) is a simple quantitative measure of cognitive ability, and is designed for use with neuro-geriatric clients. The assessment consists of 11 questions. Scores on each item can be totaled to a maximum score of 30. The mean scores for a normal sample range from 24-30. Test-retest reliability is .887 for a 24-hour interval and .98 for a 28-day interval. Concurrent validity has been demonstrated through correlation with the Weschler Adult Intelligence Scale. A correlation of .776 was found with Verbal IQ and a correlation of .66 was established with Performance IQ.

Locus of Control Scale

The Locus of Control Scale (Rotter, 1966) is a questionnaire that indexes a person's beliefs about causality (see Appendix D). The self-administered questionnaire consists of 29 questions (including six filler questions). Each external statement

chosen is scored as one point. Consequently, scores may range from zero (i.e., most internal) to 23 (i.e., most external). The scale demonstrates an internal consistency coefficient of .70. Test-retest reliability was .72 for a one month interval. Cardi (as cited in Rotter, 1966) reported correlations of .03 to -.22 with measures of intelligence, indicative of good discriminate validity.

Index of Occupational Behavior

The Index of Occupational Behavior (Gregory, 1983) examines the meaning and significance of activity and activity patterns among the elderly (see Appendix E). The Index of Occupational Behavior consists of an Activity Index that addresses the amount of activity in which an individual participates, and the Meaningfulness of the Activity Scale that addresses the enjoyability, autonomy, and competency associated with frequently (at least one time per week) engaged in activities. The Index of Occupational Behavior yields a summed score for frequency of participation in, and meaningfulness of, activities. The Index demonstrates test-retest reliability of .87. Concurrent validity has been demonstrated with measures of life satisfaction.

Procedure

All participants provided informed consent to participate in the research study (see Appendix F). Participants were cognitively screened using the Mini-Mental State assessment (Folstein, M., Folstein, S., & McHugh, 1975; see Appendix C). Individuals who scored in the normal range then completed the Locus of Control Scale (Rotter, 1966; see Appendix D) and the Index of Occupational Behavior (Gregory, 1983; see Appendix E). Of all the individuals asked to participate in the study, two individuals did not score in the normal range on the Mini-Mental State Assessment.

Therefore, the individuals who did not qualify were thanked for their participation and excused.

Data Analyses

Analyses of variance (ANOVA) were used to determine relationships between living situation and age, gender, locus of control, and occupational behavior. Analyses of variance were also used to investigate the relationships between occupational behavior and gender, occupational behavior and site, locus of control and gender, and locus of control and site. When ANOVA revealed significant differences, Tukey's post hoc multiple comparison test was then utilized.

Pearson product-moment correlations were used to determine associations between age and locus of control, length of stay and locus of control, age and occupational behavior, length of stay and occupational behavior, and locus of control and occupational behavior. An alpha level of .05 was used for all statistical tests. Of the 62 subjects, 2 failed to correctly complete the locus of control scale. Therefore, their information was not included in analyses involving locus of control.

CHAPTER IV

RESULTS

Demographic Information

Age and Gender

The independent living sample ($n=20$) consisted of 17 females and 3 males who ranged from 72 to 95 years of age. The assisted living sample ($n=21$) consisted of 18 females and 3 males who ranged from 50 to 92 years of age. The comprehensive care facility sample ($n=21$) consisted of 18 females and 3 males who ranged in age from 61 to 90 years of age. The frequency and distribution of the subjects' ages are reported in Table 1.

Table 1
Frequency and Distribution of Subjects' Ages

Living Situation	Frequency of Age Ranges (In Years)					Mean Age
	50-59	60-69	70-79	80-89	90-99	
Independent Living	0	0	3	12	5	86
Assisted Living	1	0	6	12	2	81
Comprehensive Care	0	2	6	12	1	80

Length of Stay

The length of stay ranged from 2 to 264 months for individuals in the independent living sample, from 1 to 96 months for individuals in the assisted living sample, and from 1 to 64 months for individuals in the comprehensive care sample. The frequency and distribution of length of stay are reported in Table 2.

Table 2
Frequency and Distribution of Length of Stay

Living Situation	Frequency of Length of Stay (In Months)					Mean Length
	0-24	25-48	49-72	73-96	97+	
Independent Living	7	6	3	3	1	51 (4.25 yrs)
Assisted Living	15	2	2	2	0	28 (2.3 yrs)
Comprehensive	2	5	4	0	0	26 (2.2 yrs)

Statistical Analyses

Age

A one-way ANOVA was conducted on participant age with living situation serving as the between-subject factor. There was a significant main effect for living situation, $F(2, 59) = 3.13, p = .05$ (see Figure 1). Post-hoc analyses revealed that individuals in independent living were significantly older ($M = 85.60$) than individuals in comprehensive care ($M = 79.95, p < .05$). Individuals in independent living ($M = 85.60$) were not significantly older than individuals in assisted living ($M = 81.38, p =$

.17) and individuals in assisted living ($M = 81.38$) were not significantly older than individuals in comprehensive care ($M = 79.95$, $p = .81$).

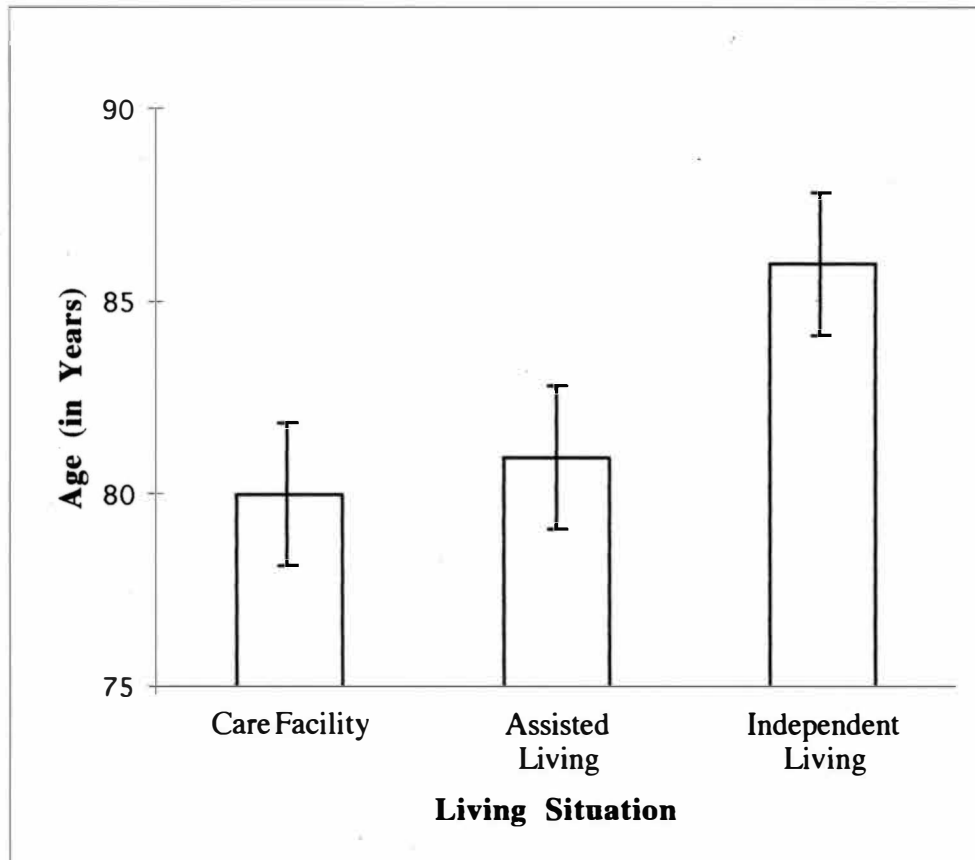


Figure 1. Mean Age of Participants in Each Living Situation.

Previous research has suggested that age-related changes in locus of control orientation may occur (Lachman, 1985; Strickland & Shaffer, 1971). However, in the present study, the participants' ages were not significantly correlated with locus of control, $r(60) = -.16$, $p = .24$.

Gender

Living situation, locus of control, and occupational behavior did not differ significantly between genders.

Length of Stay

Across all living situations, a longer length of stay was associated with significantly higher scores on the Index of Occupational Behavior, i.e., increased frequency of participation in, and meaningfulness of, activities ($r(62) = .27, p < .05$; see Figure 2).

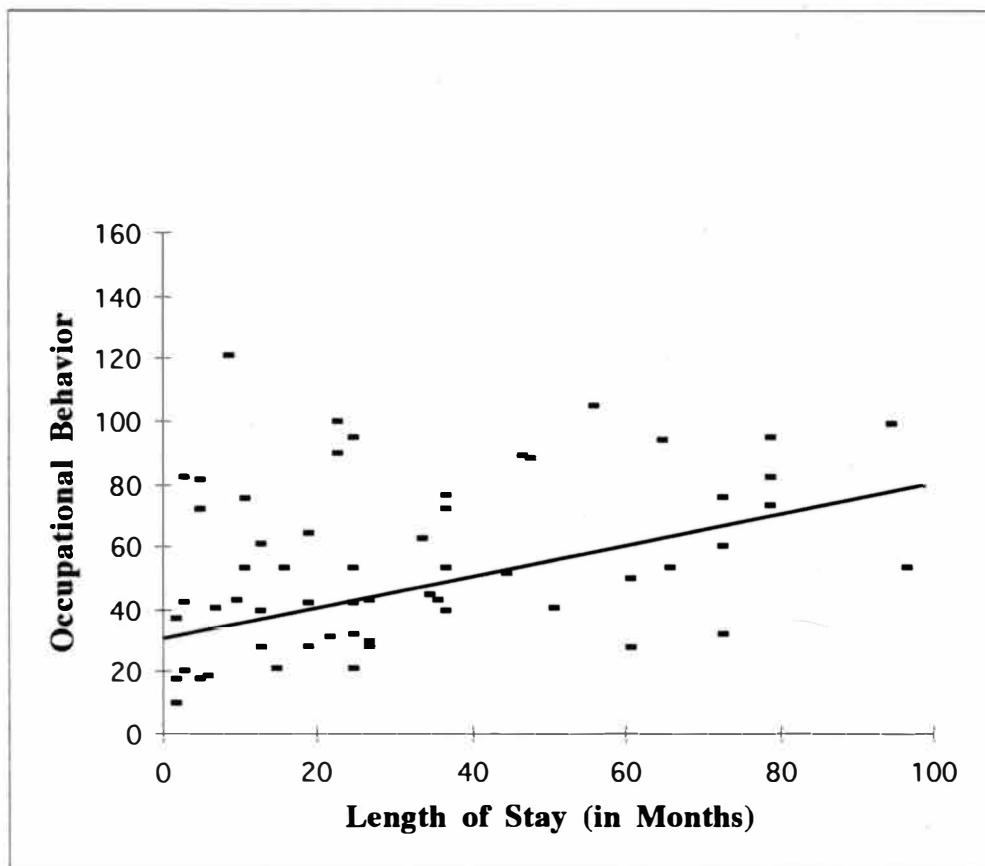


Figure 2. Scatter-Plot for Length of Stay and Occupational Behavior.

A one-way ANOVA conducted on length of stay with living situation serving as the between-subject factor revealed no significant main effect for living situation, $F(2, 57) = 2.66, p = .08$.

Locus of Control

A one-way ANOVA conducted on locus of control with living situation serving as the between-subject factor revealed a significant main effect for living situation, $F(2, 57) = 4.47, p < .05$ (see Figure 3).

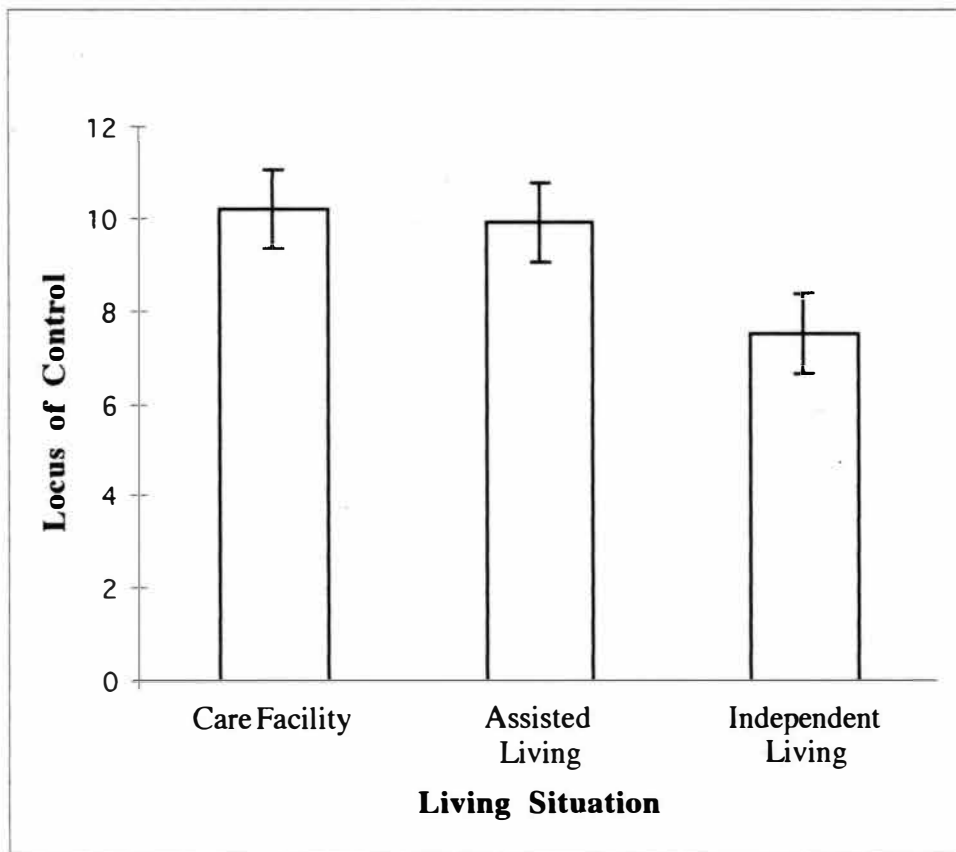


Figure 3. Mean Locus of Control Scores Across Living Situations.

Individuals in independent living had a significantly more internal locus of control ($M = 7.47$) than individuals in assisted living ($M = 9.95$, $p < .05$) and in comprehensive care ($M = 10.20$, $p < .05$). The main effect of living situation on locus of control could have been due to a confound between living situation and age. Specifically, individuals who resided in independent living were significantly older than individuals in the other two living situations. To assess this possible confounding effect, an Analysis of Covariance (ANCOVA) was conducted on locus of control with living situation serving as the between-subject factor and participant age serving as a covariate. This analysis revealed that the main effect of living situation which was apparent in the one-way ANOVA on living situation and locus of control was no longer significant in the ANCOVA with age as a covariate, $F(2, 57) = 1.79$, $p = .18$. This suggests that age may have been a contributing factor in locus of control orientation, as the individuals in independent living were the oldest and possessed the most internal locus of control.

No facility which offered independent living differed significantly in locus of control scores from any other independent living facility. The same also held true for comparisons among the comprehensive care facilities. The two assisted living facilities were not compared because of the large disparity in sample size between the respective sites.

Occupational Behavior

A one-way ANOVA conducted on occupational behavior with living situation serving as the between-subject factor revealed a significant main effect for living situation, $F(2, 59) = 9.13$, $p < .001$. Individuals independent living reported significantly more occupational behavior ($M = 77.65$) than individuals in assisted living ($M = 46.57$, $p < .05$) and in comprehensive care ($M = 46.43$, $p < .05$; see Figure 4).

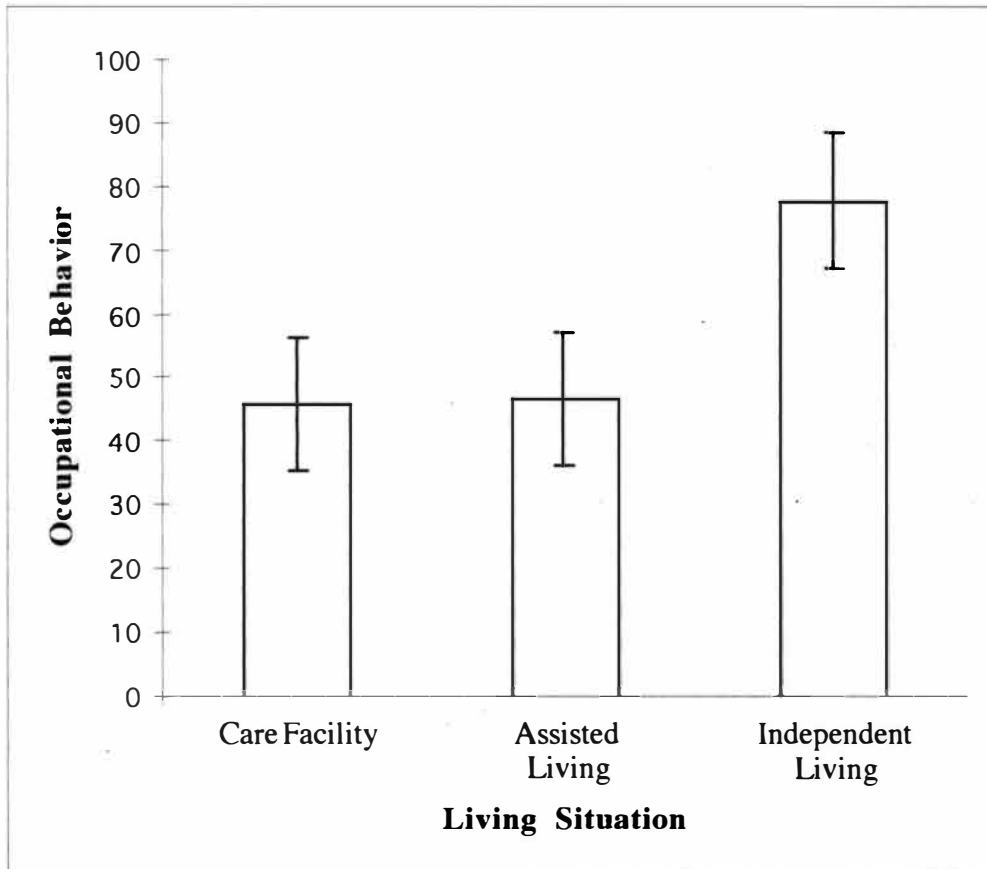


Figure 4. Mean Occupational Behavior Scores Across Living Situations.

Occupational behavior and length of stay were significantly correlated, $r(62) = .27, p < .05$. Therefore, an ANCOVA was conducted on occupational behavior with living situation serving as the between-subject factor and length of stay serving as a covariate. The main effect of living situation remained significant, $F(2, 59) = 11.59, p < .001$. A main effect for length of stay was also significant, $F(2, 59) = 8.16, p < .01$, as was the interaction between living situation and length of stay, $F(2, 59) = 4.20, p < .05$. Therefore, even when length of stay was accounted for, individuals in independent living engaged in significantly more occupational behavior ($M = 77.65$) than individuals in assisted living ($M = 46.57, p < .005$) and than individuals in

comprehensive care ($M = 46.43$, $p < .001$).

Occupational behavior scores did not differ significantly among independent living facilities or among comprehensive care facilities. Furthermore, occupational behavior and locus of control were not significantly correlated, $r(60) = -.17$, $p = .38$.

CHAPTER V

DISCUSSION

Interpretation of Results

Locus of Control

Locus of Control and Living Situation

The results of the present study suggest that individuals who reside in institutional settings tend to have a more external locus of control than those who live in non-institutional settings. These results are consistent with earlier research (Nehrke, Bellucci, & Gabriel, 1977) and may be due to the adoption of a more external locus of control as the individuals surrender control to the constraints of the institutional environment (Beck, 1982; Coleman, 1984; Rodin, 1986; Teitelman & Priddy, 1988). An alternate explanation is that the transition into an institutional setting, and resultant decreased control, leads to the adoption of a more external locus of control (Arling et al., 1986).

In contrast to the current research, Morrison (1994) found no significant differences in locus of control between individuals in a nursing home and those who reside in the community. The individuals in the independent condition of the Morrison (1994) study were sampled from those attending events at a community senior citizens center. In the present study, the independent-living individuals lived in retirement communities which also offered more extensive levels of care (i.e., assisted living and/or comprehensive care). It is possible that those individuals who choose to move into a

retirement complex, which will care for their needs regardless of future changes in physical condition, differ from those elderly who opt to live in the community.

During this study, the researcher observed that most of the independent-living individuals chose to move into the retirement community, whereas most of the individuals in assisted living and in comprehensive care felt as if they had been placed in the facility. Perhaps the process by which an individual arrives in a given living situation (voluntary choice or placement) is critical in resultant perceptions of control. Furthermore, other factors, such as physical health, may contribute to diminished perceptions of control of individuals who reside in assisted living and in comprehensive care.

Locus of Control and Length of Stay

The present study suggests that the differences in locus of control orientation may be the result of the process of institutionalization or mitigating factors including the physical health of the individual, and not be a consequence of time spent in an institutional environment. If the adoption of a more external locus of control was solely the result of time spent in an institutional environment, then a greater length of stay would likely be associated with a more external locus of control. The present study revealed no such association and lends further support for a lack of relationship between length of stay and locus of control, as has been suggested in earlier research (Nehrke, Hulicka, & Morganti, 1980).

Locus of Control and Age

The findings of the present study are unclear concerning the relationship between age and locus of control orientation. Past research concerning age and locus

of control has been inconsistent with support for internality decreasing (Lachman, 1983) as well as increasing (Lachman, 1985; Staats, 1974; Strickland & Shaffer, 1971; Wolk & Kurtz, 1975) with advancing age. Furthermore, other researchers have suggested that no locus of control orientation shifts occurs with advancing age (Andrisani, 1978; Bradley & Webb, 1976; Kuypers, 1972; Nehrke, Hulicka, & Morganti, 1980).

The lack of conclusive association between age and locus of control suggests that advancing age in and of itself may not result in the adoption of a more external locus of control. Perhaps it is living situation, and in the manner in which one arrived in that living situation, which is a stronger determinant of locus of control than age alone. This proposition is supported through the finding that individuals in independent living (who were significantly older than those in comprehensive care) possessed a more internal locus of control orientation.

Gender

In the present study, living situation, locus of control, and occupational behavior did not differ significantly between genders; however, one must exercise extreme caution in the interpretation of these findings, given the disparity in sample composition. Of the 62 total subjects, only 9 were male. This study used a convenient, rather than a random, sample and the male to female ratio used in the present study, 1:5.89, is not representative of the male to female ratio in the elderly population of the United States, 1:1.44 (U.S. Bureau of the Census, 1996). Therefore, no conclusions concerning gender should be drawn based upon the findings of the present study.

Occupational Behavior

Occupational Behavior and Living Situation

Independent-living individuals in the present study reported more occupational behavior and a more internal locus of control than individuals in assisted living and in comprehensive care. Upon initial examination, this finding appears to add limited support to the suggestion that increased activity is associated with an internal locus of control (Hunter et al., 1980; Kuypers, 1971; Lumpkin, 1985; Wolk & Kurtz, 1975). The possession of a more internal locus of control may result in greater participation in activities, or greater participation in activities may result in the maintenance, or development of, a more internal locus of control. However, when this finding is examined in light of the lack of association between occupational behavior and locus of control observed in the present study, a more complete explanation may be that other independent-living variables contribute to a more internal locus of control and increased occupational behavior.

Occupational Behavior and Length of Stay

A possible explanation for the association between occupational behavior and length of stay is that individuals may engage in more activities as they become more and more familiar with their living environment and what it may have to offer. However, as the information is correlational, not causal, one cannot determine if individuals do engage in more activities as they become more accustomed to the environment, or if those individuals who engage in more activities, regardless of motivation, tend to stay longer in a given living situation.

Occupational Behavior and Age

The present study suggested that occupational behavior may not decline with age even though an individual's choice of activity may change over time. Perhaps time previously spent engaged in more physically demanding activities, such as yard work or extensive meal preparation, is later spent enjoying more sedentary activities, such as playing cards or working cross-word puzzles. The Occupational Behavior Index utilized was not sensitive enough to allow for comparison between type of activity, but did address the frequency of participation in, as well as meaningfulness of, activities.

Physical Health

An external locus of control has been associated with poorer health status (Brothen & Detzner, 1983; Hunter et al., 1980; Lumpkin, 1985). As a result of the design of the present study, only individuals who scored in the normal range on the Mini-Mental State Assessment were utilized in the subject pool. This design facet was intended to control for cognitive status. If cognitive status (i.e., dementia, etc.) is controlled for, it is possible that an influential determinant of living situation could be physical health. For example, for two individuals of similar cognitive status, it is likely that an individual in independent living may be in better physical health than an individual in a comprehensive care facility. Therefore, physical health may play a confounding role in determining locus of control and occupational behavior.

Future Directions

In past research, activity level has also been positively correlated with life satisfaction (Markides & Martin, 1979; Palmore & Kivett, 1977). The present study

did not address life satisfaction, but future studies may benefit from the inclusion of this variable as it may have vast implications for elderly institutionalized individuals.

Research should also further investigate the process of institutionalization and its ramifications. A study which addresses this issue and also compares locus of control orientation among individuals who reside in the community with those who live in retirement communities that offer a continuum of care services may serve to further clarify the relationship between locus of control and living situation. Furthermore, future studies should address the role of physical health as it relates to living situation and occupational behavior in order to gain a more complete understanding of locus of control orientation in the elderly.

Ramifications for Occupational Therapy

Many elderly individuals receive occupational therapy after experiencing a physical stress. In some cases, the physical stress may have been the impetus for institutionalization. Solomon (1990) comments, "When faced with stress, the older person experiences a diminished sense of mastery over his/her internal or external environment... This diminished mastery then triggers feelings of helplessness and ambivalent feelings of dependency on others" (p. 34).

The results of the current study indicate that physical health may in fact play a crucial role in locus of control. Brothen and Detzner (1983) propose, "Loss of control of one's physical wellbeing [sic] may result in a feeling of reduced influence over all life events and make it difficult to maintain an internal locus of control" (p. 946). As a rehabilitation professional, the occupational therapist is in a unique position to assist elderly individuals in the restoration, or maintenance of, a more internal locus of control. Llorens (1970) conceptualizes occupational therapy as "a facilitation process

which assists the individual in achieving mastery of life tasks and the ability to cope as efficiently with the life expectations made of him” (p. 93). If the role of the occupational therapist is to facilitate mastery over everyday tasks, the therapist must first cultivate the individual’s perceptions of himself or herself as an active being, one who is capable of acting upon, and exerting influence within, the environment. Perceptions of oneself as an agent of change are a necessary prerequisite to actively exerting influence over life and situational events.

The present research suggests that increased participation in occupational behavior, in and of itself, is not sufficient for the maintenance of an internal locus of control. However, individuals in independent living did possess a more internal locus of control and report more occupational behavior. A viable explanation may be that these individuals engage in more adaptive behaviors because they are in better physical condition. Alternately, it may be a benefit of a less structured living environment. Or, as suggested previously, the process of institutionalization itself may result in decreased perceptions of control for individuals in assisted living or in comprehensive care facilities. Regardless of the source of the diminished control, once the individual is institutionalized, the occupational therapist may be able to positively impact his or her perceptions of control.

Solomon (1990) suggests that in treatment, “The patient advocate for him/herself, plan aspects of the occupational therapy treatment program in consultation with the occupational therapist, and carry out the necessary steps to implement the plan” (p. 45). Solomon also comments, “A further expectation in any treatment program is that the patient is capable of making choices...” (p. 45). Thus, enhancing an individual’s perceptions of control could simply involve presenting the individual with choices and allowing the individual to actively influence the structure of treatment.

Solomon (1990) proposes that providing individuals with active choice can even be implemented with individuals with cognitive impairments. For example, members of a structured exercise group can be asked to which music (when provided with options) they would prefer to exercise (p. 47). Therefore, almost any treatment task could be graded in such a way as to allow the client to exert influence and hopefully increase perceived control.

Occupational therapists should nurture “an individual’s beliefs about his or her effectiveness” (Keilhofner, 1992, p. 157) and then utilize this enhanced control to help the individual maintain a sense of control and accomplishment when faced with the stresses of institutionalization, loss of former life roles and social supports, and physical illness. If an individual has a diminished sense of control, he or she will not be motivated for, or actively engaged in, treatment. Thus, it is essential for occupational therapists to have a fuller understanding of the interaction of factors such as locus of control, living situation, occupational behavior, and health as this understanding is critical to effective intervention with elderly individuals. With this knowledge, occupational therapists may be able to better assist the elderly in the development of the adaptive behaviors necessary to cope with the unique challenges of advancing age.

Appendix A

Protocol Clearance From the Human Subjects Institutional Review Board



WESTERN MICHIGAN UNIVERSITY

Date: 20 November 1996

To: JoAnne Wright

From: Richard Wright, Chair

A handwritten signature in cursive script that reads "Richard A. Wright".

Re: HSIRB Project Number 96-10-37

This letter will serve as confirmation that your research project entitled "The Relationship Between Locus of Control, Activity Level and Living Situation Among Elderly Individuals" has been **approved** under the **exempt** category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you must seek specific approval for any changes in this design. Unless subsequent site letters are received by the HSIRB, this approval applies only to Bronson Place. You must also seek reapproval if the project extends beyond the termination date. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 20 November 1997

xc: Jennifer Birchenough



WESTERN MICHIGAN UNIVERSITY

Date: 15 May 1997

To: JoAnne Wright, Principal Investigator
Jennifer Birchenough, Student Investigator

From: Richard Wright, Chair *Richard Wright*

Re: Changes to HSIRB Project Number 96-10-37

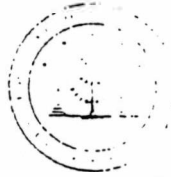
This letter will serve as confirmation that the changes to your research project "The Relationship Between Locus of control, Activity Level and Living Situation Among Elderly Individuals" requested in your FAX dated 30 April 1997 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 20 November 1997



WESTERN MICHIGAN UNIVERSITY

Date: 30 April 1997

To: JoAnne Wright, Principal Investigator
Jennifer Birchenough, Student Investigator

From: Richard Wright, Chair

Re: Changes to HSIRB Project Number 96-10-37

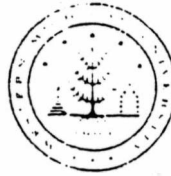
This letter will serve as confirmation that the changes to your research project "The Relationship Between Locus of control, Activity Level and Living Situation Among Elderly Individuals" requested in your FAX dated 29 April 1997 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 20 November 1997



WESTERN MICHIGAN UNIVERSITY

Date: 20 March 1997

To: JoAnne Wright, Principal Investigator
Jennifer Birchenough, Student Investigator

From: Richard Wright, Chair

Re: Changes to HSIRB Project Number 96-10-37

This letter will serve as confirmation that the changes to your research project "The Relationship Between Locus of Control, Activity Level and Living Situation Among Elderly Individuals" requested in your memo dated 13 March 1997 have been approved by the Human Subjects Institutional Review Board.

The conditions and the duration of this approval are specified in the Policies of Western Michigan University.

Please note that you may **only** conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 20 November 1997

Appendix B
Approval Letters From Research Sites

I understand that Jennifer Birchenough will be conducting a research project as part of the requirements for completion of her Masters in Occupational Therapy degree using residents of this facility. I understand that a signed consent will be given by all participants.

I understand that confidentiality of all data will be maintained by Jennifer Birchenough.

I understand that customary safety precaution will be taken by Jennifer Birchenough during the data collection to ensure the safety and well-being of the participants.

I give my assurance that proper space, lighting, and ventilation will be available at this facility and that the first aid facilities will be available if needed.

I give my approval for Jennifer Birchenough to conduct research necessary for her Masters thesis using individuals who are determined to be appropriate participants at this facility.

If I have any questions, I may call Jennifer Birchenough at 387-5762, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns I might have.


Rhonda J. Yellig, NHA
Bronson Place Care Center

11-16-96
Date



The Best in Retirement Living

APPROVAL FOR RESEARCH

I understand that Jennifer Birchenough will be conducting a research project as part of the requirements for completion of her Masters In Occupational Therapy degree using residents of this facility. I understand that a signed consent will be given by all participants.

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I give my approval for Jennifer Birchenough to conduct research necessary for her Masters thesis using individuals who are determined to be appropriate participants this facility.

If I have any questions, I may call Jennifer Birchenough at 387-5762, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns I might have.

Signature

Mary Lou Flick

Date

Social Director

2-26-97

PARK
PLACE **L**iving **C**entre

Specialized Care for Senior Adults

4222 S. Westnedge Avenue • Kalamazoo, MI 49008 • (616) 388-7303

APPROVAL FOR RESEARCH

I understand that Jennifer Birchenough will be conducting a research project as part of the requirements for completion of her Masters in Occupational Therapy degree using residents of this facility. I understand that a signed consent will be given by all participants.

I understand that confidentiality of all data will be maintained by Jennifer Birchenough.

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If I have any questions, I may call Jennifer Birchenough at 387-5762, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns I might have.

Signature



Date

3-4-97



APPROVAL FOR RESEARCH

I understand that Jennifer Birchenough will be conducting a research project as part of the requirements for completion of her Masters in Occupational Therapy degree using residents of this facility. I understand that a signed consent will be given by all participants.

I understand that confidentiality of all data will be maintained by Jennifer Birchenough.

I understand that customary safety precautions will be taken by Jennifer Birchenough during the data collection to ensure the safety and well-being of the participants.

I give my assurance that proper space, lighting, and ventilation will be available at this facility and that the first aid facilities will be available if needed.

I give my approval for Jennifer Birchenough to conduct research necessary for her Masters thesis using individuals who are determined to be appropriate participants this facility.

If I have any questions, I may call Jennifer Birchenough at 387-5762, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns I might have.

Signature

Date

Kim Corneau
3/10/97 Resident Services



APPROVAL FOR RESEARCH

I understand that Jennifer Birchenough will be conducting a research project as part of the requirements for completion of her Masters in Occupational Therapy degree using residents of this facility. I understand that a signed consent will be given by all participants.

I understand that confidentiality of all data will be maintained by Jennifer Birchenough.

I understand that customary safety precautions will be taken by Jennifer Birchenough during the data collection to ensure the safety and well-being of the participants.

I give my assurance that proper space, lighting, and ventilation will be available at this facility and that the first aid facilities will be available if needed.

I give my approval for Jennifer Birchenough to conduct research necessary for her Masters thesis using individuals who are determined to be appropriate participants this facility.

If I have any questions, I may call Jennifer Birchenough at 387-5752, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8296 with any concerns I might have.

Signature

Karen A. Halsted

Date

4/29/97



South Bend-Regency Place

44

A Vencor Facility

52654 North Ironwood Road
South Bend, Indiana 46635
(219) 277-8710
(219) 271-4395 Fax

4/30/97

APPROVAL FOR RESEARCH

I understand that Jennifer Birchenough will be conducting a research project as part of the requirements for completion of her Master's in Occupational Therapy degree using residents of this facility.

I understand that confidentiality of all data will be maintained by Jennifer Birchenough.

I understand that customary safety precautions will be taken by Jennifer Birchenough during the data collection to ensure the safety and well-being of the participants.

I give my assurance that proper space, lighting, and ventilation will be available at this facility and that the first aid facilities will be available if needed.

I give my approval for Jennifer Birchenough to conduct research necessary for her Master's Thesis using individuals who are determined to be appropriate participants in this facility.

If I have any questions, I may call Jennifer Birchenough at 387-5762, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects INstitution Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns that I may have.

David P. Orchanian, MPA, OTR, RSM
Rehabilitation Services Manager

Angela Sutton, H.F.A.
Executive Director

Appendix C
Mini-Mental State Assessment

INSTRUCTIONS FOR ADMINISTRATION OF MINI-MENTAL STATE EXAM

ORIENTATION

- (1) Ask for the date. Then ask specifically for parts omitted, e.g., "Can you also tell me what season it is?" One point for each correct.
- (2) Ask in turn "Can you tell me the name of this hospital?" (town, county, etc.). One point for each correct.

REGISTRATION

Ask the patient if you may test his/her memory. Then say the names of 3 unrelated objects, clearly and slowly, about one second for each. After you have said all 3, ask him/her to repeat them. This first repetition determines his/her score (0-3) but keep saying them until he/she can repeat all 3, up to 6 trials. If he does not eventually learn all 3, recall cannot be meaningfully tested.

ATTENTION AND CALCULATION

Ask the patient to begin with 100 and count backwards by 7. Stop after 5 subtractions (93, 86, 79, 72, 65). Score the total number of correct answers.

If the patient cannot or will not perform this task, ask him/her to spell the word "world" backwards. The score is the number of letters in correct order. E.g., dlrow=5, dlrow=3.

RECALL

Ask the patient if he/she can recall the 3 words you previously asked him/her to remember. Score 0-3.

LANGUAGE

Naming: Show the patient a wrist watch and ask him/her what it is. Repeat for pencil. Score 0-2.

Repetition: Ask the patient to repeat the sentence after you. Allow only one trial. Score 0 or 1.

3-Stage command: Give the patient a piece of plain blank paper and repeat the command. Score 1 point for each part correctly executed.

Reading: On a blank piece of paper print the sentence, "Close your eyes," in letters large enough for the patient to see clearly. Ask him/her to read it and do what it says. Score 1 point only if he/she actually closes his/her eyes.

Writing: Give the patient a blank piece of paper and ask him/her to write a sentence for you. Do not dictate a sentence, it is to be written spontaneously. It must contain a subject and verb and be sensible. Correct grammar and punctuation are not necessary.

Copying: On a clean piece of paper, draw intersecting pentagons, each side about 1 in., and ask him/her to copy it exactly as it is. All 10 angles must be present and 2 must intersect to score 1 point. Tremor and rotation are ignored.

Estimate the patient's level of sensorium along a continuum, from alert on the left to coma on the right.

Mini-Mental State

Maximum
Score Score

ORIENTATION

- 5 () What is the (year) (season) (date) (day) (month)?
5 () Where are we: (state) (county) (town) (hospital) (floor)?

REGISTRATION

- 3 () Name three objects: 1 second to say each. Then ask patient all 3 after you have said them. Give 1 point for each correct answer. Then repeat them until he learns all 3. Count trials and record.

Trials

ATTENTION AND CALCULATION

- 5 () Serial 7's. 1 point for each correct. Stop after 5 answers. Alternatively spell "world" backwards.

RECALL

- 3 () Ask for the 3 objects repeated above. Give 1 point for each correct.

LANGUAGE

- 9 () Name a pencil, and watch (2 points)
Repeat the following "No ifs, ands, or buts." (1 point)
Follow a 3-stage command:
 "Take a paper in your right hand, fold it in half, and
 place it on the floor" (3 points)
Read and obey the following:
 CLOSE YOUR EYES (1 point)
Write a sentence (1 point)
Copy design (1 point)

_____ Total score

Assess level of consciousness along a continuum _____
Alert Drowsy Stupor Coma

Source: Reprinted from the *Journal of Psychiatric Research*, Volume 12, Folstein, M. F., Folstein, S. E., & McHugh, P. R., Mini-Mental state: A practical method for grading the cognitive state of patients for the clinician, pages 196-198, Copyright 1975, with kind permission from Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington OX5 1GB, UK.

Appendix D

Internal-External Locus of Control Scale

INSTRUCTIONS FOR THE I-E SCALE

This is a questionnaire to find out the way in which certain important events in our society affect different people. Each item consists of a pair of alternatives lettered a or b. Please select the one statement of each pair (*and only one*) which you more strongly *believe* to be the case as far as you're concerned. Be sure to select the one you actually *believe* to be more true rather than the one you think you should choose or the one you would like to be true. This is a measure of personal belief: obviously there are no right or wrong answers.

Please answer these items *carefully* but do not spend too much time on any one item. Be sure to find an answer for *every* choice.

In some instances you may discover that you believe both statements or neither one. In such cases, be sure to select the *one* you more strongly believe to be the case as far as you're concerned. Also try to respond to each item *independently* when making your choice; do not be influenced by your previous choices.

Source: Rotter, J. B. (1966). Generalized expectancies for internal versus external locus of control of reinforcement. *Psychological Monographs*, 80(609), 11-12, 26.
Copyright 1966 by the American Psychological Association. Reprinted with permission.

INTERNAL-EXTERNAL LOCUS OF CONTROL SCALE

1. a. Children get into trouble because their parents punish them too much.
b. The trouble with most children nowadays is that their parents are too easy on them.
2. a. Many of the unhappy things in people's lives are partly due to bad luck.
b. People's misfortunes result from the mistakes they make.
3. a. One of the major reasons why we have wars is because people don't take enough interest in politics.
b. There will always be wars, no matter how hard people try to prevent them.
4. a. In the long run, people get the respect they deserve in this world.
b. Unfortunately, an individual's worth often passes unrecognized no matter how hard he/she tries.
5. a. The idea that teachers are unfair to students is nonsense.
b. Most students don't realize that extent to which their grades are influenced by accidental happenings.
6. a. Without the right breaks one cannot be an effective leader.
b. Capable people who fail to become leaders have not taken advantage of their opportunities.
7. a. No matter how hard you try some people just don't like you.
b. People who can't get others to like them don't understand how to get along with others.
8. a. Heredity plays the major role in determining one's personality.
b. It is one's experiences in life which determine what they're like.
9. a. I have often found that what is going to happen will happen.
b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.
10. a. In the case of a well-prepared student there is rarely if ever such a thing as an unfair test.
b. Many times exam questions tend to be so unrelated to coursework that studying is really useless.
11. a. Becoming a success is a matter of hard work, luck has little or nothing to do with it.
b. Getting a good job depends mainly on being in the right place at the right time.
12. a. The average citizen can have an influence in government decisions.
b. This world is run by the few people in power, and there is not much the little guy can do about it.

13.
 - a. When I make plans, I am almost certain that I can make them work.
 - b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune anyway.
14.
 - a. There are certain people who are just no good.
 - b. There is some good in everybody.
15.
 - a. In my case getting what I want has little or nothing to do with luck.
 - b. Many times we might just as well decide what to do by flipping a coin.
16.
 - a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.
 - b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.
17.
 - a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand, nor control.
 - b. By taking an active part in political and social affairs people can control world events.
18.
 - a. Most people don't realize the extent to which their lives are controlled by accidental happenings.
 - b. There really is no such thing as "luck."
19.
 - a. One should always be willing to admit mistakes.
 - b. It is usually best to cover up one's mistakes.
20.
 - a. It is hard to know whether or not a person really likes you.
 - b. How many friends you have depends upon how nice a person is.
21.
 - a. In the long run the bad things that happen to us are balanced by the good ones.
 - b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.
22.
 - a. With enough effort we can wipe out political corruption.
 - b. It is difficult for people to have much control over the things politicians do in office.
23.
 - a. Sometimes I can't understand how teachers arrive at the grades they give.
 - b. There is a direct connection between how hard I study and the grades I get.
24.
 - a. A good leader expects people to decide for themselves what they should do.
 - b. A good leader makes it clear to everybody what their jobs are.
25.
 - a. Many times I feel that I have little influence over the things that happen to me.
 - b. It is impossible for me to believe that chance or luck plays an important role in my life.

26.
 - a. People are lonely because they don't try to be friendly.
 - b. There's not much use in trying too hard to please people, if they like you, they like you.
27.
 - a. There is too much emphasis on athletics in high school.
 - b. Team sports are an excellent way to build character.
28.
 - a. What happens to me is my own doing.
 - b. Sometimes I feel that I don't have enough control over the direction my life is taking.
29.
 - a. Most of the time I can't understand why politicians behave the way they do.
 - b. In the long run people are responsible for bad government on a national as well as on a local level.

Appendix E
Index of Occupational Behavior

INSTRUCTIONS FOR INDEX OF OCCUPATIONAL BEHAVIOR

For each activity, place a check (✓) in one of the four columns that best describes the activity.

BE SURE THAT, FOR EVERY ACTIVITY, THERE IS A CHECK IN ONE OF THE FOUR COLUMNS.

Source: Gregory, M. D. (1983). Occupational behavior and life satisfaction among retirees. *American Journal of Occupational Therapy*, 37(8), 552-553.
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	DON'T DO/ NOT INTERESTED	DON'T DO/ WOULD LIKE TO	DO AT LEAST ONCE A WEEK	DO AT LEAST THREE TIMES A WEEK
ACTIVITY				
Takes Rides				
Cards/ Bingo				
Movies				
Group Singing				
Visit/ Entertain Relatives				
Write Letters				
Theater/ Lecture/ Concerts				
Phone Friends/ Relatives				
Work (for pay)				
Work (volunteer)				
Read				
Needle Crafts				
Watch Television				
Radio/ Listen to Music				
Hobby				
Take Care of Plants				
Repair Things in Home				
Social Clubs				
Study Group				
Clubs for Older People				
Church Groups				
Women/ Men Clubs				
Lodge				
Other (specify):				

Appendix F
Subject Informed Consent Form

Western Michigan University
Department of Occupational Therapy

Principal Investigator: JoAnne Wright, Ph.D.

Research Associate: Jennifer Birchenough, M.S. candidate

I have been invited to participate in an experimental research project for Jennifer Birchenough's graduate education. I understand that the purpose is to look at the relationship between activity level, living situation, and the beliefs of older people. I understand that there may be not any direct benefits from my participation in this study but that it will add to the research knowledge in the field of occupational therapy.

My consent to participate in this project indicates that I will be asked to complete one, two, or three questionnaires. I understand that I will be asked to provide information about my age and current living situation. Participation in this study should take between 30-45 minutes. I understand that Jennifer Birchenough will be present at all times.

I understand that all the information collected from me is confidential. Therefore, my name will not appear on any papers on which information is collected. The forms will be coded, and Jennifer Birchenough will keep a master list with the names of the participants and the corresponding code numbers. Dr. JoAnne Wright is the only other person who may see the master list. The master list will be destroyed once the data is collected and analyzed.

The data will be kept in a locked drawer in Dr. JoAnne Wright's office for three years. After three years, the data will be destroyed.

As in all research, there may be unforeseen risks to the participant. If an accidental injury occurs, appropriate emergency measures will be taken. However, no compensation or treatment will be made available to me except as otherwise specified in this consent form.

I understand that I may refuse to participate or discontinue at any time during this study without prejudice or penalty. If I have any questions, I may call Jennifer Birchenough at 387-5762, or Dr. JoAnne Wright at 387-4311. I may also contact the Human Subjects Institutional Review Board at 387-8293 or the Vice President for Research at 387-8298 with any concerns I might have. My signature below indicates that I understand the purpose and requirements of the study and that I agree to participate.

Signature

Date

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