Motivation, Self-Determination, and Person–Environment Fit as Predictors of Psychological Adjustment Among Nursing Home Residents

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In this report self-determination theory is applied to the regulation of everyday behavior in later life. Nursing home residents with more self-determined motivational orientations displayed higher levels of psychological adjustment. However, the effects of opportunities for self-determination available in the environment were less straightforward and were moderated by motivational styles. Specifically, residents with self-determined motivational styles were better adjusted when they lived in homes that provided opportunities for freedom and choice, whereas residents with less self-determined motivational styles were better adjusted when they lived in high constraint environments. The findings support person–environment fit models of adjustment in old age.

Relatively little is known about the motivation behind everyday behavior in later life. Recently, Vallerand and O'Connor (1989) described how self-determination theory (Deci & Ryan, 1985, 1991) can be applied to motivation in older adults. Measures of motivational styles were developed and found to be internally consistent and related to other important aspects of the lives of elderly people. In this article, we report findings on how motivational styles, ratings of the degree of self-determination available in the environment, and person–environment fit are associated with general psychological adjustment (life satisfaction, self-esteem, depression, and meaning in life) in older adults. We begin by describing self-determination theory.

Motivation in Later Life: Self-Determination Theory

Self-determination theory emerged from research on young people and portrays individuals as active organisms striving for effective interactions with the environment in a context of autonomy (Deci & Ryan, 1985, 1991). Individuals are said to have a need to feel competent, self-initiating, and self-regulating in their everyday behavior. The satisfaction of this need enhances motivation, whereas the thwarting of this need impairs motivation.

Deci and Ryan (1985, 1991) proposed the existence of at least four types of motivation that vary along a continuum of self-determination. From high to low self-determination, these forms of motivation are: intrinsic, self-determined extrinsic, non-self-determined extrinsic, and amotivation. The theory also specifies the relationships among these different forms of motivation as well as their causes and consequences.

Intrinsically motivated behaviors are engaged in for the pleasure and satisfaction derived from their performance. They are voluntarily performed in the absence of material rewards or constraints (e.g., exercising for the inherent pleasure derived from doing so).

Extrinsically motivated behaviors are not performed for their inherent experiential aspects but to receive or avoid something once the activity is terminated. It was originally thought that extrinsic motivation referred to non-self-determined behavior, that is, to behavior that is prompted by external contingencies. However, it has recently been discovered that there are different types of extrinsic motivation, some of which may be self-determined (Deci & Ryan, 1985, 1987). In this article, we distinguish between two broad types of extrinsic motivation: self-determined and non-self-determined.

Non-self-determined extrinsic motivation occurs when behavior is externally regulated (usually through rewards or constraints). For example, elderly persons may exercise because they feel urged to do so by others. In this case, an activity that can or should be fun is performed in order to avoid negative consequences (e.g., criticism from others). The motivation is extrinsic because the reason for participation lies outside the activity itself. Furthermore, the behavior is not chosen or self-determined.

Non-self-determined extrinsic motivation may also be fueled by a desire for rewards. For example, someone might agree to exercise "because the doctor told me that it would be good for me." In this case, the motivation is still extrinsic and non-self-determined, but the instigating factor is the desired reward (e.g., praise from the doctor). Regardless of whether the goal of behavior is to obtain rewards or to avoid sanctions, the individual experiences an obligation to behave in a specific way and feels controlled by the rewards or constraints (Deci & Ryan, 1985, 1991).

In contrast, self-determined extrinsic motivation occurs when a behavior is valued by the individual and is perceived as...
being chosen by oneself. An example is someone who exercises
"because I feel that it is a good way to stay healthy and happy."
The motivation is intrinsic because the activity is not
performed for itself but as a means to an end. However, the behavior
is nevertheless self-determined: The individual has decided that
exercising is beneficial. The person experiences a sense of direction
and purpose, instead of obligation and pressure, in performing the behavior.

Finally, individuals are said to be amotivated when they perceive
a lack of contingency between their behavior and outcomes. There is an experience of incompetence and lack of control. Amotivated behaviors are neither intrinsically nor extrin-
sically motivated. They are nonmotivated and participation will eventually cease. For example, an elderly person might say, "I really don't know why I exercise, I don't see what it does for me." Amotivated behaviors are the least self-determined because there is no sense of purpose, and no expectation of reward or of the possibility of changing the course of events.

The self-determination continuum of forms of motivation or
behavioral regulation bears some resemblance to other continua-
in the literature (e.g., locus of control, perceived control, learned helplessness). However, these other continuums refer primarily to the perceived contingency between one's behavior and the outcomes one receives, whereas self-determination also refers to the experience of freedom in initiating one's behavior. Control does not ensure self-determination. Individuals may perceive control over outcomes but they will not feel self-determined if they are compelled by interpersonal or intraindividual pressures, as in the case of non-self-determined extrinsic motivation. In sum, self-determination theory distinguishes between motivated and amotivated actions, and makes further distinctions within the class of behaviors that are motivated or intended. The central notion is the experience of choice and not mere perceptions of control over outcomes.

One of the primary determinants of motivation is the degree
to which the environment provides opportunities for self-deter-
mation (Deci & Ryan, 1985, 1991). Factors that enhance the experiences of freedom and choice are assumed to enhance motivation. The hypothesized consequences of the four kinds of motivation are based on the continuum of self-determination: The more self-determined forms of motivation are assumed to have more positive consequences for psychological adjustment. These predictions have been confirmed in a variety of life domains, including education, sports, the workplace, interpersonal relationships, and leisure activities. The more self-deter-
mined forms of motivation lead to a host of positive consequences such as greater cognitive flexibility; enhanced conceptual learning; greater interest; a more positive emotional tone; higher levels of marital happiness; greater life satisfaction; higher levels of creativity, performance, and persistence; and more adaptive reactions to stress (Deci & Ryan, 1985, 1987;
Deci, Vallerand, Pelletier, & Ryan, 1991; Maddi & Kobasa, 1982; Vallerand & Bissonnette, 1992). It would therefore seem important to examine the motivation behind everyday behaviors in old age.

Person–Environment Congruence

Numerous investigations have found that choice and control have positive consequences (Baltes & Baltes, 1986; Fry, 1989). But there are exceptions to the "control-is-good" rule. Opportunities for choice and control are associated with adjustment among highly functioning individuals and among those with an internal locus of control, but opportunities for choice and control are not associated with adjustment among individuals who are poorly functioning or who have an external locus of control (Moos, 1981; Reich & Zautra, 1990; Timko & Moos, 1989; Wolk, 1976). Furthermore, in high constraint environments elderly people with an external locus of control are better adjusted than people with an internal locus of control (Cicirelli, 1987; Felton & Kahana, 1974). Similarly, medical patients whose treatment programs (high or low personal control) are congruent with their control orientations show better physical and psychological adjustment (Rodin, Timko, & Harris, 1985). These findings are consistent with person–environment congruence models, which posit that psychological adjustment is a function of the degree of fit between aspects of the environment and the individual's personal characteristics (Carp, 1987; Kahana, Kahana, Riley, Moos & Lemke, 1985; Parmelee & Lawton, 1990; Scheidt & Windley, 1985).

One purpose of this research was to determine whether person–environment congruence is also important to self-determination and motivation in older adults. Just as the effects of environmental constraint have been found to depend upon the control orientation of individuals, it is possible that the effects of opportunities for self-determination available in the living environment vary depending upon motivational styles. Freedom and choice may be beneficial to those elderly people whose actions are regulated by self-determined forms of motivation, whereas freedom and choice may have little effect, or even negative effects, on elderly people whose actions are regulated by non-self-determined forms of motivation. For example, in personal and research on person–environment congruence suggests an interaction between the degree of self-determination available in the environment and motivational style in the prediction of psychological adjustment. This prediction was tested by measuring motivational styles, the degree of self-determination available in the environment, and general psychological adjustment among nursing home residents.

Method

Subjects and Procedure

A list of the intermediate care nursing homes in the Montreal, Canada, area was obtained from the provincial government, and 11 homes were randomly selected. Inquiries about conducting research were made to the nursing home administrators, and 3 refused. Three additional homes were randomly selected from the list. The homes varied in number of residents (range = 39–247, M = 126, SD = 64.5), number of bedrooms (range = 26–247, M = 114, SD = 69.7), number of floors in the building (range = 1–9, M = 3.6, SD = 2.2), and in staff/resident ratio (range = 1:7.7–1:14.5, M = 1:11.1, SD = 1.85).

The head nurse in each home went through the list of residents and crossed out the names of individuals who, according to her judgment, did not have the cognitive skills to answer our questions, or whose physical condition made them unable to participate (approximately 15% of residents were eliminated in this way). Our findings thus apply to nursing home residents who had sufficient cognitive skills to participate in a research interview. We then randomly selected names from the list of potential participants to sample about 10% of eligible residents in each
nursing home. The acceptance rate among these residents was approximately 80%. In other words, there was a total of 1,381 residents in the 11 nursing homes. The head nurses judged that approximately 207 residents were unable to participate, leaving a potential sample of 1,174, from which we obtained a nonstratified random sample of approximately 10% of the eligible residents from each home. There were 111 women and 18 men, whose ages ranged from 65 to 96 years (M = 80.5). Participants had been residents of the homes for an average of 3.8 years. Ninety-two were widowed, 18 were married, 14 were single, and 5 were separated or divorced.

Residents were first informed by the staff that they might be contacted to participate in a study, and a short time later those residents who agreed to participate were administered the measures interview-style by a trained research assistant.

**Measures**

*Elderly Motivation Scales* The measure of motivational styles is described in detail in Vallerand and O'Connor (1989, 1991). It was developed by first identifying 23 life domains from the literature that are believed to be important to elderly people. We then had 130 elderly people from nursing homes, hospitals, private residences, and from low-cost public housing rate the importance of each of the 23 domains. Six domains (health, religion, biological needs, interpersonal relations, current events, and recreation) received mean ratings of at least 7 on a scale of 1 to 9, and were the most important domains for both men and women for individuals living in different settings. We then had 42 elderly persons and 6 nursing home staff nominate important situations within each of the six life domains. A variety of situations were identified, and for each domain the two most commonly nominated situations were selected for inclusion as questions in the measure (e.g., "Why do you go to church?") as well as a general question for each domain (e.g., "In general, why do you practice your religion?"). For a total of three questions from each of the six life domains. For each question subjects made four ratings corresponding to the four forms of motivation: (a) "I don't know, I don't see what it does for me" (amotivation); (b) "Because I am supposed to do it" (non-self-determined extrinsic motivation); (c) "I choose to do it for my own good" (self-determined extrinsic motivation); and (d) "For the pleasure of doing it" (intrinsic motivation). This response format is analogous to that used in the Attributional Style Questionnaire (Seligman, Abramson, Semmel, & von Baeyer, 1979). The responses were given on 7-point Likert scales ranging from strongly disagree (1) to strongly agree (7). Missing values were entered when subjects could not answer a question, and mean scores were computed based on the questions that were answered. Only 2.8% of the items (261 of the 9,288 responses) received missing values. In sum, the measure of motivational styles consists of 18 questions that subjects answered by rating the truthfulness of four motivational statements, for a total of 72 ratings. The measure has undergone extensive testing and shows strong psychometric properties (see Vallerand & O'Connor, 1989, 1991).

*Psychological adjustment.* Subjects also completed the Satisfaction With Life Scale (Payot, Diener, Colvin, & Sandvik, 1991; sample item: "I am satisfied with my life"); five items from Rosenberg's (1979) Self-Esteem Scale ("I feel that I am a person of worth, at least on an equal plane with others," "I feel that I have a number of good qualities," "I am able to do things as well as most (elderly) people," "I take a positive attitude to myself," and "On the whole, I am satisfied with myself"); three items from the Beck Depression Inventory (BDI; Beck, 1967; having to do with feeling like a failure, feeling disappointed in oneself, and having suicidal thoughts) that are known to be homogeneous and valid (Kane & Kane, 1981, p. 117); and four questions adapted from Reker, Peacock, and Wong (1987) tapping meaning in life ("I believe that I can find meaning in life if I try to," "I am seeking a meaning or purpose in life," "I believe that it is possible for life to be meaningful for me in the future," and "I believe my life has meaning now"). Subjects indicated their degree of agreement with all of the items (except for those of the BDI) on 7-point scales, and mean scores were computed.

*Physical health.* The head nurse in each nursing home rated the general health of participants on a 9-point scale ranging from very poor (1) to very good (9). Reported the number of days each participant had been bedridden in the past month, the number of times they had to see a physician in the past month, how many different kinds of pills they took each day, and provided a general 9-point rating of how strong the pills were. A physical health score was computed for each subject by standardizing the scores on the individual items and computing the mean.

*Assessment of the environment.* A trained research assistant conducted separate interviews (lasting 20–30 min) with the head nurse and administrator in each nursing home regarding the rules and treatment of residents. An elaborate description of the rules in each nursing home was then written, focusing on how much choice residents had regarding their daily activities, on the extent to which the nursing home staff took responsibility for residents' personal care, and on the degree to which the staff encouraged or discouraged personal initiative. Three psychologists who are highly familiar with self-determination theory and research independently read the written descriptions and rated the degree of self-determination provided by each home in these dimensions on a 9-point scale. The raters had no information about the motivational styles, health, or psychological adjustment scores of the residents. The intraclass correlations were high (.89 to .99), and mean self-determination scores for each home were computed for the judgments of each rater. The intraclass correlation for the three sets of ratings was .96, and a mean self-determination available in the environment score for each home was then computed. The average self-determination available in the environment score for the homes was 5.18 (SD = 1.09, range = 3.30–6.93).

**Results**

The means, standard deviations, and internal consistency values for all measures are reported in Table 1. The four kinds of motivational styles displayed no significant correlations with age or physical health (see Table 2). The pattern of intercorrelations among the four kinds of motivational styles (see Table 2) was consistent with the simplex structure proposed by Deci and Ryan (1985). The correlations suggest a continuum from amotivation to non-self-determined extrinsic motivation, to self-determined extrinsic motivation, to intrinsic motivation. Adja-

| Table 1 |
| Meanings, Standard Deviations, and Reliabilities |

<table>
<thead>
<tr>
<th>Scale</th>
<th>M</th>
<th>SD</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amotivation</td>
<td>1.40</td>
<td>0.7</td>
<td>.90</td>
</tr>
<tr>
<td>Non-self-determined extrinsic motivation</td>
<td>2.24</td>
<td>1.4</td>
<td>.90</td>
</tr>
<tr>
<td>Self-determined extrinsic motivation</td>
<td>5.34</td>
<td>1.1</td>
<td>.93</td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>4.64</td>
<td>1.0</td>
<td>.86</td>
</tr>
<tr>
<td>Satisfaction With Life</td>
<td>4.96</td>
<td>1.4</td>
<td>.81</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td>5.56</td>
<td>1.1</td>
<td>.76</td>
</tr>
<tr>
<td>Depression</td>
<td>0.26</td>
<td>0.5</td>
<td>.67</td>
</tr>
<tr>
<td>Meaning in life</td>
<td>4.33</td>
<td>1.8</td>
<td>.87</td>
</tr>
<tr>
<td>Psychological adjustment</td>
<td>-0.01</td>
<td>.76</td>
<td>.74</td>
</tr>
<tr>
<td>Physical health</td>
<td>0.01</td>
<td>.63</td>
<td>.67</td>
</tr>
</tbody>
</table>

*Note.* All means are on a 1–7 scale, except for Depression (1–3) and psychological adjustment and physical health (which are composites of standardized scores).
cent scales on this continuum tended to be more closely associated with one another than with scales farther apart. The statistical tool developed by Ryan and Connell (1989) was used to evaluate the scale intercorrelations for congruency with the simplex structure. First, an adjacency index was assigned to the correlations between forms of motivation (am = amotivation; ndem = non-self-determined extrinsic motivation; sdem = self-determined extrinsic motivation; im = intrinsic motivation) according to how close the forms of motivation are along the continuum of self-determination: \( r_{am,ndem} = 3, r_{am,sdem} = 2, r_{am,im} = 1, r_{ndem,ndem} = 3, r_{ndem,sdem} = 2, r_{ndem,im} = 3 \). We then computed the amount of variance accounted for by this adjacency index in the squared correlations among the forms of motivation (squared correlations were used to restore interval scale properties to the data to meet the assumptions of a correlational test). This resulted in a congruency coefficient of \(.71 (p < .0001)\), indicating that the simplex structure was present in the scale intercorrelations.

The purpose of this study was to focus on the relationships among three key variables: motivation, the degree of self-determination provided by nursing homes, and general psychological adjustment. Motivation and psychological adjustment were each assessed by four indicators, and so composite indices were constructed to simplify the reporting of the results. The four motivation scales were assigned weights according to their relative position on the self-determination continuum, and then summed to form a Self-Determined Motivation Index (see Blais, Sabourin, Boucher, & Vallerand, 1990). Specifically, amotivation and non-self-determined extrinsic motivation were assigned weights of \(-2\) and \(-1\), respectively, because they are less self-determined forms of motivation; and self-determined extrinsic motivation and intrinsic motivation were assigned weights of \(+1\) and \(+2\), respectively, because they are more self-determined forms of motivation. The internal consistency of the Self-Determined Motivation Index was \(.76\). A Psychological Adjustment Index was computed by reflexing the scores on the BDI, converting the scores on Depression, Meaning in Life, Satisfaction With Life, and Self-Esteem into standard scores, and computing the mean of these four scores for each subject (\(\alpha = .74\)).

The correlations between the four kinds of motivation and psychological adjustment (see Table 2) corresponded to the continuum proposed by Deci and Ryan (1985). The strongest positive correlation was for intrinsic motivation (\(.57, p < .0001\)), followed by self-determined extrinsic motivation (\(.47, p < .0001\)); the strongest negative correlation was for amotivation (\(-.53, p < .0001\)), followed by non-self-determined extrinsic motivation (\(-.46, p < .0001\)).

As predicted by self-determination theory, residents in high self-determination nursing homes tended to score higher on self-determined motivation (\(\bar{r} = .27, p = .002\)). Hierarchical regression was then used to test the hypothesized main and interactive effects of self-determined motivation and self-determination available in the environment (both continuous variables) on psychological adjustment (see Cohen & Cohen, 1983, p. 310 for details on this statistical procedure). There was a strong main effect for self-determined motivation, \(R^2\) change = \(.41, F(1, 127) = 90.2, p < .0001, partial \(r = .67\) but no significant effect for self-determination available in the environment, \(R^2\) change = \(.002, F(1, 127) = 0.39, p = .54, partial \(r = .06\).

There was also a significant effect for the Motivation × Environment cross-product interaction term, \(R^2\) change = \(.03, F(1, 126) = 7.0, p < .01, partial \(r = .23\). The nature of the interaction was elucidated by deriving regression equations for psychological adjustment on self-determination available in the environment (SDM) for different levels of self-determined motivation (SDM; see Cohen & Cohen, 1983, pp. 316–325). Specifically, the regression equation for the interaction, \(Y = -.35(SDM) - .47(SDE) + .03(SDM × SDE) + .60,\) was used to derive regression equations for adjustment on self-determination available in the environment for each of five levels of self-determined motivation. The five levels, chosen from the distribution of subjects on the self-determined motivation continuum, were as follows: SDM = 9 (10th percentile), SDM = 13 (25th percentile), SDM = 16 (50th percentile), SDM = 19 (75th percentile), SDM = 20 (90th percentile). The findings are depicted in Figure 1. At lower levels of self-determined motivation (9 and 13) the regression lines indicate a negative relationship between psychological adjustment and self-determination available in the environment \([Y = -.21(SDE) + .28, and Y = -.09(SDE) + .14, respectively]\). At the moderate level of self-determined motivation (16) the regression line was almost flat \([Y = -.004(SDE) + .03]\). And at the higher levels of self-determined motivation (19 and 20) the relationship between psychological adjustment and self-deter-

<table>
<thead>
<tr>
<th>Scale</th>
<th>Amotivation</th>
<th>Non-self-determined extrinsic motivation</th>
<th>Self-determined extrinsic motivation</th>
<th>Intrinsic motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-self-determined extrinsic motivation</td>
<td>.39*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-determined extrinsic motivation</td>
<td>- .31*</td>
<td>- .38*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrinsic motivation</td>
<td>- .54*</td>
<td>- .59*</td>
<td>.58*</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>- .06</td>
<td>- .04</td>
<td>- .03</td>
<td>.03</td>
</tr>
<tr>
<td>Physical health</td>
<td>.01</td>
<td>- .11</td>
<td>.04</td>
<td>.13</td>
</tr>
<tr>
<td>Psychological adjustment</td>
<td>- .53*</td>
<td>- .46*</td>
<td>.47*</td>
<td>.57*</td>
</tr>
</tbody>
</table>

* \(p < .0001\).
determined motivation was $R^2$ change = .28, $F(1, 123) = 50.1$, $p < .0001$, partial $r = .57$, and the effect for the Motivation $\times$ Environment interaction term was $R^2$ change = .03, $F(1, 122) = 5.49$, $p = .02$, partial $r = .22$.

**Discussion**

The findings demonstrate that self-determination theory (Deci & Ryan, 1985, 1991) can be applied to the motivation behind everyday behavior in old age. Four kinds of broad cross-situational motivational tendencies can be reliably measured in institutionalized older adults. The intercorrelations among the motivational styles were in accordance with the continuum of self-determination proposed by Deci and Ryan. Self-determined motivation is also clearly associated with general psychological adjustment in institutionalized older adults, as is the case for younger populations. Seniors who engage in everyday behaviors for their inherent pleasure, or because they choose to perform actions for their own good, show better psychological adjustment than seniors who are amotivated or who perform everyday actions because they are supposed to.

However, the effects of the degree of self-determination available in the environment on psychological adjustment are less straightforward and are moderated by motivational styles. Individuals whose everyday behavior is regulated by self-determined forms of motivation are better adjusted when they live in settings that provide opportunities for freedom and choice. But individuals whose everyday behavior is regulated by less self-determined forms of motivation are better adjusted when they live in settings that provide fewer opportunities for freedom and choice. These findings provide further support for person–environment fit models of adjustment in old age. Self-determination and control are not beneficial to everyone. What seems important is for the environment to be congruent with one’s motivational orientation.

The significant person–environment interaction presents a challenge for self-determination theory. Opportunities for choice and autonomy are invariably considered desirable in this work (Deci & Ryan, 1985, 1987, 1991), but the findings here suggest that this may not always be true. Some elderly people in nursing homes may simply not benefit from high levels of autonomy. Perhaps self-determination theory could be expanded to incorporate person–environment congruence: At any single time of measurement, opportunities for autonomy should not be too discrepant from the individual’s motivational orientation. But what could be important for long-term adjustment is for the environment to provide opportunities for autonomy that are always slightly greater than one’s level of self-determined motivation. Low motivation individuals would thus experience a degree of person–environment congruence, but would also be encouraged to enhance the regulation of their everyday behavior.

This research was limited in that only nursing home residents were studied and most were women. In addition, the subjects were residents who were judged by the head nurses to be physically and intellectually fit to participate in a research interview, and it is unknown whether the findings also apply to more impaired nursing home residents or to independently living older adults. In future research on this issue it would seem important
to examine the relationship between intellectual impairment and the experience of self-determination. Future research could also focus on motivation in specific life domains instead of the general orientations examined in this study. The Elderly Motivation Scales cover six life domains and can be used for this purpose (e.g., O’Connor & Vallerand, 1990).

Despite the limitations of this study, it is clear that this theory, which has been found useful in research on young adults, can be applied to motivation in elderly people. The findings also contribute to the growing support for person–environment congruence models (Carp, 1987; Kahana et al., 1989; Moos & Lemke, 1985; Parmelee & Lawton, 1990; Scheidt & Windley, 1985). The Motivation × Self-Determination interaction is yet another manifestation of the importance of “fit” for psychological adjustment.

References


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