Possible Selves and Perceived Health in Older Adults and College Students

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Two studies were conducted to assess motivational aspects of the self by measuring hoped-for and feared possible selves among a sample of older adults and college students. It was predicted that health-related possible selves would be predominant among older adults, but not college students, and that self-regulatory aspects of possible selves would be related to perceived health. Data were collected through interviews and questionnaires. Older adults were significantly more likely to have possible selves in the realm of health than were college students. Regression analyses with the older sample indicate that outcome expectancy for a hoped-for possible self was positively related to perceived health, whereas amount of time spent thinking about a hoped-for possible self was negatively related to perceived health. However, these relationships were not significant when evaluated in relation to a feared possible self, indicating that there may be differences in the way self-regulatory processes operate in service of positive, as opposed to negative, goals for the self. Results are discussed with reference to theoretical models of self-efficacy and motivation over the life span.

There is growing evidence that personal characteristics are linked to health (e.g., Booth-Kewley & Friedman, 1987; Carson, 1989; Kobasa, 1979), although the mechanisms that produce this association are currently unclear (Krantz & Hedges, 1987). Although the trait approach has been fruitful, recently it has been argued (e.g., Leventhal & Hirschman, 1982; Rakowski, 1984; Whitbourne, 1987) that researchers studying relationships between personality and health must also begin to examine the self-system.

The term "self" can be conceptualized in many ways (see Breytspraak, 1984; Harter, 1983; Wylie, 1979). There is a rich tradition in social psychology that treats the self for empirical purposes as a complex set of attitudes (Bengtson, Reedy, & Gordon, 1985). Working within this social-psychological framework, and drawing heavily on the symbolic interactionists (e.g., Cooley, 1902; Mead, 1934), Markus and her colleagues (e.g., Markus & Kunda, 1986; Markus & Wurf, 1987) are developing an approach to the study of the self that is particularly relevant for a contextual understanding of behavior within the life-span perspective. The self is defined as self-knowledge (Markus, 1983) and is composed of a relatively stable universe of self-conceptions. However, different situations "pull" a different subset of self-conceptions from this universe, thereby allowing the working self-concept, or self-concept of the moment (Markus & Wurf, 1987), to be situationally responsive. This view of the self-concept as both stable and dynamic fits life-span conceptions of the individual that emphasize continuity, while acknowledging the capacity for adaptation and change (e.g., Atchley, 1989). Additionally, it coheres nicely with the contextual notion that we are self-directed, goal-oriented producers of our own development (e.g., Brandstätter, 1989; Lerner, 1985), since humans to a large extent choose situations in which to interact. It is important to determine how these self-regulatory processes operate. The control theory model (e.g., Carver & Scheier, 1982) stipulates that individuals compare their current state with an internal goal or standard. If a discrepancy exists, individuals may change their behavior to meet the standard, or — if they do not expect to succeed — they may disengage and eventually change that internal standard. It is important to understand motivational aspects of the self, since goals, plans, or intentions form the endpoints toward which behavior is directed (Carver & Scheier, 1982; Klinger, 1977; Miller, Galanter, & Pribram, 1960).

Bandura (1977; 1982; 1989) and others (Carver & Scheier, 1982; Heckhausen, 1986; Kuhl, 1985) have written extensively about the role that self-regulatory processes play in the implementation of goals. Bandura (1989) states, "...by cognitive representation in the present, conceived future events are converted into current motivators and regulators of behavior" (p. 729). Bandura's theory emphasizes the central role of perceived self-efficacy in controlling behavior. People who believe strongly in their capabilities are persistent in their efforts to achieve their goals. Outcome expectancy in Bandura's model is linked with self-efficacy in that one's subjective probability that an outcome is attainable depends on the degree of confidence in one's own personal agency to effect that outcome. However, Scheier and Carver (1987), as well as Heckhausen (1986), separate outcome expectancy from personal efficacy, recognizing that outside sources may also influence outcomes. Thus, by allowing more than one locus of causality from which expectancies arise, the control theory model allows for predictions that personal efficacy judgments and external circumstances will influence behavioral decisions. This separation of personal efficacy from outcome expectancy would seem to be particularly apt for studying self-regulatory processes in later life, when many outcomes may not be under the individual's personal control (Lachman, 1986; Rodin, 1986).

A component of self-knowledge that has particular relevance for the understanding of self-regulatory processes and motivation is a construct Markus and colleagues (e.g., Cross
recruited from two senior centers of a northeastern city from March–November 1988 and were paid $10 for their participation in the study. The sample was predominantly White (97%), retired (79%), and socioeconomic status (Holllingshead 4 Factor Index, 1975) ranged from low (8) to high (66, mean = 35, SD = 13.5). Forty-four percent of the sample was widowed, 37% were married, and 19% were either divorced or separated. The mean number of years of education completed was twelve.

**Measures**

Possible selves were assessed through a face-to-face audiotaped interview. The interview was an adaptation of a questionnaire measure of possible selves used by Markus and her colleagues. It was thought that the possible self-questionnaire could be confusing to older adults. Thus, data were collected in person so that the interviewer could answer questions and clarify any ambiguous statements. After establishing rapport with the respondent and collecting information on demographic variables, the interviewer proceeded with the following questions designed to elicit a complete listing of hoped-for possible selves:

Now I’m going to ask you some questions about your future. Probably everyone thinks about their future to some extent. When doing so, we usually think about the kinds of experiences that are in store for us and the kinds of people we might possibly become. Sometimes we think about what we hope we will be like.

One way researchers have of talking about this is to talk about possible selves — selves we hope to become in the future. Some of these possible selves seem quite likely, for example, one of my hoped-for possible selves is . . . (interviewer mentions one pertaining to career). Others seem quite farfetched but are still possible, for example, one of my own is to win the lottery and become a millionaire.

I want you to take a few minutes now and think about all of your hoped-for possible selves — you may have just a few or you may have many. What are the hoped-for possible selves that you imagine for yourself at this point in time? This might be difficult to think about on the spur of the moment, so TAKE YOUR TIME.

You can begin listing your hoped-for possible selves whenever you feel ready.

Then, the respondents were asked to identify their most important hoped-for self and were given four Likert-scale items to answer in relation to the most important hoped-for possible self. The interviewer handed the respondent a separate sheet that contained four items designed to assess self-regulatory processes. Beneath each question was a line with numbers ranging from 1 to 7, and appropriate descriptive anchors beneath the extreme responses. Instructions were to "circle the number that best indicates how you feel." The items were: (1) "How capable do you feel of accomplishing your hoped-for possible self?" (1 = not at all capable, 7 = completely capable). This variable is labeled perceived efficacy. (2) "How likely do you think it is for your possible self to come true?" (1 = very unlikely, 7 = very likely). This variable is labeled outcome expectancy. (3) "How
much time do you spend thinking about this possible self?" (1 = rarely, 7 = often). This variable is labeled time spent thinking. (4) "How important is this possible self to you?" (1 = not very important, 7 = extremely important). This variable is labeled importance. The purpose of the importance question was to serve as a check on the validity of the possible self identified as most important. Although respondents were instructed to identify their most important hoped-for self, the possibility existed that they may not have any that they considered very important, or that they did not wish to discuss their most important possible self with the interviewer. However, over 87% of the sample circled a 6 or a 7 (mean = 6.4, SD = 1.2), thus indicating that participants discussed and rated possible selves that they did consider to be very important to them.

The interviewer then asked series of questions designed to elicit a complete listing of the respondent's feared selves.

In addition to having hoped for possible selves, we may have images of ourselves in the future that we fear or dread. Some of these feared possible selves may seem quite likely. For example, one of my feared selves is . . . (interviewer mentions one pertaining to career). Other feared possible selves may seem quite unlikely, for example, one of mine is "being a homeless person." Some of us may have a large number of feared possible selves in mind, while others may have only a few.

Take a few minutes and think about all of your feared possible selves.

What are the feared or unwanted possible selves that you imagine for yourself at this point in time?

Again, respondents were asked to identify their most important (i.e., dreaded) feared self and were then given a separate sheet with the four Likert-scale items with response categories from 1 to 7 and the same descriptive anchors listed previously. The items were: (1) "How capable do you feel of preventing your feared possible self?" (2) "How likely do you think it is that your feared possible self will come true?" (3) "How much time do you spend thinking about this feared possible self?" (4) "How important is it to you to prevent this possible self from coming true?" Again, item 4 was included as a validity check, and most individuals identified a most important feared self that they subsequently rated as very important (mean = 6.5, SD = 1.3).

The possible self interview took an average of 42 minutes to complete. For the purposes of this study, it was determined whether participants had a most important hoped-for or feared self in the realm of health, whether health was mentioned somewhere in their possible self repertoires, or whether there was no mention of a health-related possible self. Twenty percent of the data were randomly selected for a check on interrater reliability. A doctoral student who was unfamiliar with the project and blind to the hypotheses coded the content of the possible selves with regard to health. Interrater reliability was high, 91% agreement, Cohen's kappa = .74.

A conceptual issue that emerged was how to code possible selves that were based on dependency issues. For example, hoped-for selves of maintaining one's independence, or feared selves of dependency (e.g., fear of living in a nursing home), are implicitly, rather than explicitly, health-related. However, since these hopes and fears for the self most likely spring from multiple concerns (e.g., fear of a nursing home due to fear of loss of autonomy as well as loss of health), and because health may not be the most important one, the decision was made not to count dependency issues as health-related. This decision biases the data against support of the hypothesis that most older people will have possible selves in the realm of health.

Perceived health. — Perceived health was assessed with four questions, each having a four-category response scale. The first question, "How would you rate your health at the present time?", had the response alternatives excellent, good, fair, or poor. This is the most frequently used general health rating (Davies & Ware, 1981). The other items and their response categories were: "How much do you feel that your health interferes with your usual daily activities?" (none, slightly, moderately, a great deal); "How often do you get ill or injured (including colds, headaches, and coughs)?" (never or once in a great while, about 4 or 5 times a year, about once a month, more than once a month); "When you do get ill or injured, how serious is it usually?" (very serious, moderately serious, slightly serious, not serious at all). Cronbach's alpha for this 4-item scale was .78.

Health value. — A measure of health as a value was included both for theoretical as well as psychometric reasons. Although it is often assumed that people uniformly value health highly, it is important to actually test this assumption empirically. The construct of possible selves is relatively new and, to my knowledge, this study is the first attempt to measure the construct of "health-related possible selves." It was predicted that individuals who had a health-related possible self would score more highly on a measure of health as a value than individuals who did not have a health-related possible self. If this were to be the case, it would show evidence of convergent validity for the health-related possible self measure.

To measure health as a value, a 4-item scale developed by Lau, Hartman, and Ware (1986) was used. The scale has strong psychometric properties and has been used with samples of adults as well as students. Individuals responded on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) to the following items: (1) "If you don't have your health you don't have anything." (2) "There are many things I care about more than my health." (3) "Good health is only of minor importance in a happy life." (4) "There is nothing more important than good health." After reversing items 2 and 3, scores were summed and thus ranged from a low of 4 to a high of 28. Cronbach's alpha for this scale was .57 in this study.

Procedure
Subjects were recruited at senior center meetings and through posted announcements of the research project on a bulletin board at the centers. Volunteers were called and an interview time that was convenient for them was scheduled.
Respondents were interviewed in a private room in the senior center from which they were recruited, or in their own homes (whichever they preferred). The interviewers were highly trained doctoral candidates in a psychology program and senior psychology majors. After the interview, respondents were paid and given a packet of measures (the health questions were included in this packet) to be completed within the next week. The interviewers gave instructions to the respondent (instructions were also printed on the measures themselves) and offered to answer any questions. The importance of returning the prepaid, postage-paid packets was emphasized. One follow-up phone call was made to remind some of the participants to return the packets. Ninety-six percent of the sample returned the packets with at least some of the questionnaires completed.

RESULTS

The mean number of hoped-for selves generated during the interviews was 3.8 (range was 0–11), whereas the mean number of feared selves generated was 2.4 (range was 0–8). As shown in Table 1, there was strong support for the hypothesis that the majority of older adults would have a health-related possible self. Most of the sample (86%) described at least one health-related hoped-for or feared self during the interview. When asked to identify their most important hoped-for self and most dreaded feared self, 73% of the sample had a health-related possible self in one of these categories. Thus, most of the older adults had at least one image of self in the future related to a health issue and almost three-quarters of the sample identified a health-related possible self as their most important hoped-for self or most dreaded feared self.

In order to see whether those who had a possible self in the realm of health had higher scores on the Health Value scale, three groups were formed that correspond to the three categories in Table 1. Group 1 consisted of individuals who had a most important hoped-for or feared self in the realm of health; Group 2 consisted of individuals who mentioned a health-related possible self somewhere in their possible self-repertoire, but not as most important; and Group 3 consisted of individuals who did not mention a health-related possible self. A multivariate analysis of variance (MANOVA) showed that there were no significant differences between the three groups on age, SES, or education level, although those in Group 3 were somewhat younger (mean = 68.7, SD = 7.7) than participants in Group 1 (mean = 72.6, SD = 5.5) or Group 2 (mean = 72.6, SD = 7.6).

An analysis of variance (ANOVA) was conducted using scores on the Health Value scale as the dependent variable. The overall F-test was significant [F(2, 101) = 4.1, p = .02, (two-tailed)], indicating that there were significant differences between the three groups. Follow-up comparisons using least significant difference tests showed that there were differences significant at the .05 level (two-tailed) for both Group 1 (mean = 21.6, SD = 5.5) and Group 2 (mean = 21.6, SD = 4.7) compared with Group 3 (mean = 17.2, SD = 6.2), but there was no significant difference between Groups 1 and 2. Thus, those who have a health-related self present (either as most important or simply mentioned) in their possible self-repertoire score higher on a measure of overall health value.

In order to examine relationships between perceived health and self-regulatory processes associated with possible selves, regression techniques were used. Recall that participants were asked to respond to the Likert-scale items assessing perceived efficacy, outcome expectancy, and time spent thinking only in response to those possible selves identified as most important and most dreaded. Thus, two regression analyses were conducted: one in which the predictor variables were self-regulatory variables rated with respect to most important hoped-for self and one in which predictor variables were self-regulatory variables rated with respect to most important feared self. Perceived health was the outcome variable in both of these regressions. Different subsets of subjects went into both of these analyses as, theoretically, it only made sense to evaluate the hypothesis regarding perceived health and self-regulatory variables among those who identified their most important possible selves in these domains. Referring back to Table 1, it can be seen that 53 subjects were eligible for the analysis regressing perceived health on self-regulatory variables associated with one’s most important hoped-for self (29 whose most important hoped-for self was health-related plus the 24 who identified both a most important hoped-for self as well as a most dreaded feared self in the realm of health). Likewise, 54 subjects were eligible for the analysis regressing perceived health on self-regulatory variables associated with one’s most important feared self (30 whose most important feared self was health-related plus the 24 who had a health-related possible self in both hoped-for and feared categories). Thus, the 24 subjects with both a most important hoped-for self and most important feared self in the realm of health were used in both regression analyses.

Given the relatively small number of subjects available for each regression analysis, it was not feasible to enter into the

### Table 1. Frequencies of Health-Related Possible Selves in a Sample of Older Adults (N = 114)

<table>
<thead>
<tr>
<th>Type of Self</th>
<th>N</th>
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<tbody>
<tr>
<td>Group 1 — Health-Related Possible Self Was Mentioned As Either Most Important Hoped-For Self or Most Dreaded Feared Self</td>
<td></td>
</tr>
<tr>
<td>Hoped-for</td>
<td>29 (25% of sample)</td>
</tr>
<tr>
<td>Feared</td>
<td>30 (26% of sample)</td>
</tr>
<tr>
<td>Both</td>
<td>24 (21% of sample)</td>
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<tr>
<td>Subtotal:</td>
<td>83 (73% of sample)</td>
</tr>
<tr>
<td>Group 2 — Health-Related Possible Self Was Mentioned, But Not As Most Important Hoped-For Self or Most Dreaded Feared Self</td>
<td></td>
</tr>
<tr>
<td>Hoped-for</td>
<td>3 (5% of sample)</td>
</tr>
<tr>
<td>Feared</td>
<td>7 (6% of sample)</td>
</tr>
<tr>
<td>Both</td>
<td>5 (4% of sample)</td>
</tr>
<tr>
<td>Subtotal:</td>
<td>15 (13% of sample)</td>
</tr>
<tr>
<td>Group 3 — No Mention of a Health-Related Possible Self</td>
<td></td>
</tr>
<tr>
<td>Subtotal:</td>
<td>16 (14% of sample)</td>
</tr>
</tbody>
</table>

Note: The frequencies listed are a conservative reporting of the frequencies of health-related possible selves; as dependency issues (e.g., fear of living in a nursing home) were not coded as health-related. If possible selves relating to dependency issues were coded as health-related, then Group 1 would have 94 subjects, Group 2 would have 7 subjects, and Group 3 would have 13 subjects.
model all of the demographic variables collected. Because the demographic variables were collected mainly for the purpose of describing the sample, rather than for theoretical reasons, only the demographic variable (SES) that showed a significant zero-order correlation with perceived health was entered so that the coefficients for the self-regulatory variables would have the influence of SES partialled from them.

As shown in Table 2, among those whose most important hoped-for self was health-related, a large portion of variance in perceived health (52%) can be explained by the self-regulatory variables. Those who rated their health-related hoped-for self as more likely to come true (outcome expectancy) perceived their health more favorably than those who rated it as less likely to come true. The zero-order correlations show that perceived efficacy was also related to perceived health. However, perceived efficacy and outcome expectancy were correlated (r = .62), so that perceived efficacy contributed little to prediction of perceived health when outcome expectancy was also in the equation. An unexpected finding was that the amount of time people reported thinking about a most important health-related hoped-for self was strongly negatively related to perceived health.

In contrast to the large amount of variance in perceived health accounted for by self-regulatory variables associated with a health-related hoped-for self, relatively little variance in perceived health is accounted for by self-regulatory variables associated with a health-related feared self. As shown in Table 3, there are no significant predictors of perceived health. Thus, there is no apparent symmetry in the relation of self-regulatory processes and perceived health for hoped-for vs feared selves. Outcome expectancy that a dreaded self will come true and the belief that one is capable of preventing a dreaded self are not operating in the same manner in relation to perceived health, as outcome expectancy and perceived self-efficacy are for a hoped-for self.

A summary of results for Study 1 is that the majority of older adults not only have possible selves in the realm of health, but have a most important possible self in the realm of health. Self-regulatory variables associated with a hoped-for health-related self, but not a feared health-related self, are strong predictors of perceived health.

Before discussing these results, data from a comparison group of college students are presented. Study 2 was an attempt to replicate the results of Study 1 on a younger sample. Although it was predicted that a sample of college students would not have such a high percentage of individuals spontaneously identifying possible selves that are health-related, perhaps health is such a basic concern that people of all ages will have health-related possible selves.

### Study 2

**Method**

**Subjects**

Subjects were 114 college students (53.5% female), predominantly White (90%), ranging in age from 17 to 23 years (mean = 18.6, SD = 1.7). They were recruited from introductory psychology classes at a large, private university and received partial course credit for participating in the study.

### Measures

Possible selves were assessed using a questionnaire modeled after the one used by Markus and her colleagues. In order to make the testing situation more analogous to the interview procedure used in Study 1, the experimenter (the author or doctoral student) read from a script the exact text used in the interviews with the older subjects (see "possible selves" measure in Study 1). That is, the experimenter first explained the concept of hoped-for possible selves, entertained any questions the students may have had, and then asked them to list as many hoped-for possible selves as they could think of. However, instead of doing this in a face-to-face interview, subjects were provided with a sheet of paper that was essentially blank except for the heading Hoped-for Possible Selves (list as many as you can think of). At the bottom of this page and all the pages in the Possible Selves questionnaire were the instructions, "Look up when finished, do not turn page."

When all subjects were finished listing their hoped-for possible selves, the experimenter asked them to turn to the next page on which they were asked to identify their most important hoped-for possible self. Next, they were provided with the same four Likert scale questions described in Study 1 to assess perceived efficacy, outcome expectancy, time spent thinking, and importance in relation to the hoped-for self they identified as most important. Most students (88%)

| Table 2. Correlations and Regression Analyses for Hoped-For Selves and Perceived Health (N = 53) |
|-----------------------------------------------|-------|-------|
| Variables | r     | B     |
| Perceived efficacy* | .34** | .00   |
| Outcome expectancy* | .56** | .97   |
| Time spent thinking* | - .35** | - .64 |
| SES | .32* | .00   |

R² = .52, adjusted R² = .47, df = 4.41, p ≤ .0001.
*These variables were Likert-scale items rated in relation to most important hoped-for self.
*p ≤ .05 (two-tailed); **p ≤ .01 (two-tailed); ***p ≤ .0005 (two-tailed).

| Table 3. Correlations and Regression Analyses for Feared Selves and Perceived Health (N = 54) |
|-----------------------------------------------|-------|-------|
| Variables | r     | B     |
| Perceived efficacy* | .02   | .24   |
| Outcome expectancy* | - .23 | - .14 |
| Time spent thinking* | - .35* | - .29 |
| SES | .29* | .05   |

R² = .19, adjusted R² = .11, df = 4.37, p ≤ .09.
*These variables were Likert-scale items rated in relation to most dreaded feared self.
*p ≤ .05 (two-tailed).
rated the importance of this hoped-for possible self as a 6 or a 7 (mean = 6.4, SD = 0.8), indicating that they thought this hoped-for self was indeed important to them.

The experimenter then read from a script the exact text used to describe the concept of feared selves used with the older subjects in Study 1. After answering any questions the students had, everyone was instructed to list all of their feared selves. They were provided with a page headed Feared Possible Selves (list as many as you can think of).

When all subjects were finished listing their feared possible selves, the experimenter asked them to turn to the next page on which they were asked to identify their most important (i.e., dreaded) feared self. Next, they were provided with the same four Likert scale questions in Study 1 to assess perceived efficacy, outcome expectancy, time spent thinking, and importance in relation to the feared self they identified as most important. Almost everyone (96.5%) rated the importance of this feared possible self as a 6 or 7 (mean = 6.7, SD = 0.6), again indicating that they were listing a feared self that had a lot of meaning for them.

For the purposes of this study, subjects were divided into three groups based on whether they had a most important hoped-for or feared self in the realm of health, whether health was listed somewhere in their possible self-repertoires, but not as most important or whether there were no health-related possible selves listed. Twenty percent of the data were randomly selected for a check on interrater reliability. A doctoral student who was unfamiliar with the project and blind to the hypotheses coded the content of the possible selves with regard to health. Interrater reliability was high, Cohen's kappa = .94.

In Study 1, a conceptual issue was how to code possible selves based on dependency issues, where health issues were implicit (no one in good health would enter a nursing home, for example). A conservative approach was taken, recognizing that this would bias the data against the hypothesis by not counting dependency issues as health-related. In this study with college students, the major issue that became problematic was how to code hoped-for selves and feared selves relating to weight and "staying in shape." With this age group, weight control is almost always motivated by a concern with physical attractiveness, rather than (or in addition to) health. For example, an 18-year-old female listed her most important hoped-for possible self as, "Skinny, skinny, skinny, skinny!" and her most dreaded feared self as, "gaining too much weight." The reason given for listing the feared self was, "People won't like me because I'm fat, especially boys." A similar response that also exemplifies the underlying motivation concerning weight was given by a female whose most dreaded feared self was "not losing enough weight to be super-thin again" because, "I want to look good so as to attract potential dates ('mates')." However, wanting to look attractive coincides with a healthful concern over weight (except in cases where an excessive concern can be an indication of an eating disorder). Thus, the decision was made to code issues relating to weight and staying in shape as health-related. Again, this decision biases the data against the support of the hypothesis that college students will not have as many health-related possible selves as older individuals. However, this decision was made for two reasons: (1) Not many participants in Study 1 mentioned weight as a concern, and if they did it was almost always in conjunction with an explicit health reason (e.g., diabetes, heart disease, etc.) and thus was coded as health-related. Therefore, to be consistent across the two studies, it was necessary to count possible selves concerning weight as health-related. (2) If the data showed differences even with the most conservative counting of health-related possible selves between the two samples, this would provide strong support for the hypothesis of age differences in health-related selves.

**Perceived health.** — Perceived health was assessed with the same four questions utilized in Study 1. Cronbach's alpha for the scale with this sample was .55.

**Health value.** — Health as a value was again assessed using the 4-item scale developed by Lau, Hartmann, and Ware (1986). Cronbach's alpha for the scale sample was .72.

**Procedure**

Subjects were recruited through the Introductory Psychology pool via sign-up sheets. There were separate sign-up sheets for females and males in order to obtain approximately the same number of males as females. Subjects were tested in four sessions, with only males or only females in each session. Sessions had a maximum of 30 subjects and were run in classrooms on campus. All of the questionnaires were completed at this time.

**RESULTS**

The mean number of hoped-for selves generated was 7.5 (range was 2–18), whereas the mean number of feared selves generated was 5.0 (range was 0–14). As shown in Table 4, although — like the older sample — most subjects (71%)

<table>
<thead>
<tr>
<th>Type of Self</th>
<th>N</th>
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<tbody>
<tr>
<td>Group 1 — Health-Related Possible Self Was Listed as Either Most Important Hoped-For Self or Most Dreaded Feared Self</td>
<td></td>
</tr>
<tr>
<td>Hoped-for</td>
<td>2 (1.7% of sample)</td>
</tr>
<tr>
<td>Feared</td>
<td>16 (14% of sample)</td>
</tr>
<tr>
<td>Both</td>
<td>2 (1.7% of sample)</td>
</tr>
<tr>
<td>Subtotal: 20 (17.5% of sample)</td>
<td></td>
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<tr>
<td>Group 2 — Health-Related Possible Self Was Listed, But Not as Most Important Hoped-For Self or Most Dreaded Feared Self</td>
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</tr>
<tr>
<td>Hoped-for</td>
<td>12 (10.5% of sample)</td>
</tr>
<tr>
<td>Feared</td>
<td>30 (26% of sample)</td>
</tr>
<tr>
<td>Both</td>
<td>19 (17% of sample)</td>
</tr>
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<td>Subtotal: 61 (53.5% of sample)</td>
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<tr>
<td>Group 3 — No Health-Related Possible Selves Were Listed</td>
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<tr>
<td>Subtotal: 33 (30% of sample)</td>
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Note. The frequencies listed are a liberal reporting of the frequencies of health-related possible selves, as concerns about physical appearance (e.g., a hoped-for self of being thin or a feared self of being fat, was coded as health-related). See text for a discussion of this issue. If possible selves relating to physical appearance were not coded as health-related, then Group 1 would have 6 subjects, Group 2 would have 36 subjects, and Group 3 would have 72 subjects.
listed at least one health-related hoped-for or feared self, a much smaller percentage (17.5%) identified their most important hoped-for self or most dreaded feared self as health-related. Almost one-third of the college students had no health-related possible self. As shown in the note to Table 4, these numbers would look very different if issues related to weight were not counted (e.g., 64% would have no health-related possible selves). A chi-square analysis comparing frequencies of health-related possible selves in these three categories across the two samples showed that there were significant differences between older adults and college students, \( \chi^2(2, N = 228) = 72.3, p \leq .0001 \).

In order to see whether those who had a possible self in the realm of health had higher scores on the health as a value scale, three groups were again formed corresponding to the three categories in Table 4. An ANOVA was conducted using scores on the Health Value scale as the dependent variable. The overall F-test was significant \( [F(2,110) = 3.7, p = .03] \), indicating that there were significant differences between the three groups. Follow-up comparisons using least-significant difference tests showed that there were differences significant at the .05 (two-tailed) level between Group 1 (mean = 21.4, SD = 5.0) and Group 2 (mean = 17.9, SD = 4.6), but no significant difference between Group 3 (mean = 19.3, SD = 5.4) and Groups 1 or 2. Thus, although those with a most important possible self in the realm of health seem to value health the most highly, those who had a health-related possible self listed somewhere in their possible self-repertoire actually had the lowest scores on the Health Value scale.

In Study 1, useful information was obtained about self-regulatory processes of a most important health-related possible self in relation to perceived health. However, since so few students had a most important hoped-for and/or feared self in the realm of health, regression analyses necessary to examine these relationships with the college student sample could not be conducted. What was possible, however, was simply to compare the two samples on all of the possible self variables, regardless of whether the self-regulatory variables were rated in relation to a health-related possible self. A one-way MANOVA was run in order to see if there were differences on Health, Health Value, number of hoped-for and feared selves generated, and the self-regulatory variables between the two samples. The overall multivariate test of no sample effect was rejected, Hotellings T\(^2\)(10,188) = 18.0, \( p \leq .0001 \). As shown in Table 5, there were significant differences on the Health Value scale, number of hoped-for and feared selves, time spent thinking about hoped-for and feared selves, and outcome expectancy for a feared self. Older adults had higher scores on the Health Value scale, which makes sense intuitively as health is likely to become more salient in later life. Many of the college students reported that they "take their health for granted." The college students spontaneously generated more hoped-for selves and feared selves than the older adults, and reported spending more time thinking about their most important hoped-for self and most dreaded feared self than did older adults. This, too, seems logical because college students are at a point in their lives when future possibilities are wide open, and much of their current activity is in service of some

<table>
<thead>
<tr>
<th>Variable</th>
<th>Older Adults ( (N = 114) )</th>
<th>College Students ( (N = 114) )</th>
<th>F-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived health</td>
<td>12.3(2.8)</td>
<td>12.3(2.3)</td>
<td>.02</td>
</tr>
<tr>
<td>Health value</td>
<td>21.0(5.7)</td>
<td>18.9(5.0)</td>
<td>11.8**</td>
</tr>
<tr>
<td>Number of hoped selves</td>
<td>3.8(2.0)</td>
<td>7.5(3.1)</td>
<td>85.0***</td>
</tr>
<tr>
<td>Number of feared selves</td>
<td>2.4(1.5)</td>
<td>5.0(2.1)</td>
<td>85.9***</td>
</tr>
<tr>
<td>Perceived efficacy - hoped</td>
<td>5.4(1.6)</td>
<td>5.7(1.2)</td>
<td>.01</td>
</tr>
<tr>
<td>Outcome expectancy - hoped</td>
<td>5.6(1.7)</td>
<td>5.7(1.1)</td>
<td>.01</td>
</tr>
<tr>
<td>Time spent thinking - hoped</td>
<td>4.7(2.3)</td>
<td>5.5(1.4)</td>
<td>7.2*</td>
</tr>
<tr>
<td>Perceived efficacy - feared</td>
<td>5.4(1.6)</td>
<td>5.6(1.3)</td>
<td>1.7</td>
</tr>
<tr>
<td>Outcome expectancy - feared</td>
<td>3.6(2.1)</td>
<td>2.8(1.6)</td>
<td>12.2**</td>
</tr>
<tr>
<td>Time spent thinking - feared</td>
<td>3.0(2.1)</td>
<td>4.4(1.9)</td>
<td>19.0***</td>
</tr>
</tbody>
</table>

*These variables were Likert-scale items rated in relation to most important hoped-for self.

**These variables were Likert-scale items rated in relation to most dreaded feared self.

\( *p < .01 \) (two-tailed); \( **p < .001 \) (two-tailed); \( ***p < .0001 \) (two-tailed).

future goal. Older adults think that it is more likely that their most dreaded self will come true, but report spending less time thinking about this possibility than do college students.

Interestingly, there were no differences between older adults and college students on Perceived Health, outcome expectancy for a hoped-for self, and perceived efficacy for accomplishing a hoped-for self or preventing a feared self. Thus, respondents in both samples rated themselves as relatively capable of achieving a most important hoped-for self and preventing a most dreaded feared self, and were equally optimistic that a most important hoped-for self would come true.

A summary of results for Study 2 is that few college students have most important possible selves in the realm of health. However, because many college students are concerned about their weight, a large percentage of them can be considered to have at least one hoped-for or feared self in the realm of health. A comparison of the older adult sample and college student sample revealed both differences and similarities in the way these groups think about health and self.

**DISCUSSION**

The self is a potent organizer of perceptions and experiences throughout life. Measuring possible selves was a fruitful method for getting people to report their most important goals for the future, as well as their dreaded fears. Although the future probably has a different meaning for most people in later life, compared to earlier points in the life span, older adults were able to talk about their goals and plans for the future. And, as hypothesized, most older adults had possible selves that were related to health. The centrality of health for well-being in later life has ample documentation (e.g., Bearon, 1989; Larson, 1978; Lawton, 1983). However, this study is unique in that it shows that health is not simply a vague global concern for most older adults, but rather a concern that is intimately tied to self-conceptions in a way that is very concrete for individuals.
Differences and similarities between older adults and college students. — The most striking result from this study is the large difference in frequencies of health-related possible selves of older adults as compared with college students. Keep in mind that several methodological aspects of the studies made this test a rigorous one. First, possible selves were spontaneously generated by the subjects themselves. The individual himself or herself reported what their possible selves were and identified which ones were most important. Second, the coding of health-related possible selves was done in such a way as to bias the data against the hypothesis that older adults would have more health-related selves than college students. Specifically, dependency issues were not counted as health-related, and concerns about weight loss or gain were counted as health-related.

An intriguing hypothesis, which these data do not refute (but longitudinal data are necessary to claim strong support), is that health becomes increasingly incorporated into the self over the life span. Research on social cognition shows that information perceived as relevant for the self is more likely to be encoded and more easily retrieved (e.g., Fiske & Taylor, 1984). Older adults scored higher on the Health Value scale and had more health-related possible selves, indicating that health is certainly more salient for older adults. Thus, older adults may be particularly motivated to be attentive to information on health and may be more likely to engage in health protective behaviors (Hooker & Kaus, in press). More research is necessary, and is currently being conducted, to determine if health-related possible selves begin to emerge as most important in middle age. A longitudinal study with multiple age groups and cohorts would be necessary to test the developmental hypothesis that health becomes increasingly incorporated into the self with age.

The finding that the older adult sample rated their health as favorably as the younger adults has also been found in previous research (e.g., Cockerham, Sharp, & Wilcox, 1983). Although this may seem counterintuitive, given that older adults are likely to have more chronic health problems, it has usually been explained in terms of social comparison processes. That is, presumably older adults, when asked to rate their health, rate it with respect to their age-peers in similar living conditions (Maddox, 1962). If health becomes increasingly incorporated into the self with age, then an alternative social psychological explanation is also possible. It has been shown that nondepressed individuals engage in many cognitive strategies designed to protect the self, even if that requires some "distortion of reality" or "cognitive illusions" (e.g., Taylor & Brown, 1989). Thus, perhaps nondepressed older individuals have an exaggerated perception of their health.

Interestingly, although college students had significantly more possible selves and spent more time thinking about their most important possible selves than did older adults, older adults reported feeling just as capable of achieving (or preventing) their most important possible selves as did college students. Lachman (1985) reported that older adults, compared with middle-aged adults, had the highest score on a 3-item scale of general perceived efficacy. It is often suggested that control, in general, is somewhat compromised in later life (e.g., Rodin, 1986). However, perhaps one way in which individuals manage to maintain satisfaction and a sense of autonomy is by choosing at least one important goal for the self that they are confident in being able to manage. Since control is domain-specific (Lachman, 1986), one could have a diminished overall sense of control, yet still maintain a sense of control and perceived efficacy over a domain that has particular relevance for the self.

Older adults and college students had equally high outcome expectancies that their most important hoped-for self would come true. However, older adults had higher outcome expectancies (but the mean was only a 3.6 on a scale of 1–7) than college students that their most dreaded feared selves would come true. This finding is difficult to explain, especially since perceived efficacy for preventing a most dreaded feared self is relatively high. Perhaps older adults are optimistic, but at the same time more realistic. They may recognize, or be more willing to admit than college students, that sometimes, despite one’s best efforts to stave off unwelcome outcomes, they can still occur. A clearer understanding of the relationship between self-regulatory processes and possible selves, at least in the realm of health, can be gained by examining the regression analyses done with the older adult sample.

Self-regulatory processes of possible selves and health among older adults. — One of the most interesting results was the finding that amount of time spent thinking about a most important health-related possible self was negatively related to perceived health. Perhaps being in poor health may cause one to think self-focused thoughts more, because bodily symptoms may force one to focus on the self. Thus, daydreams of a hoped-for health-related self, as well as rumination about a feared health-related self, may be more likely among those whose attention is focused inward because of health problems. Alternatively, a social-psychological explanation of the negative relationship between Perceived Health and time spent thinking is possible. It has been shown that individuals experiencing depression or negative affect tend to exhibit relatively high levels of self-focus (Wood, Saltzberg, & Goldsamit, 1990) and are more accurate than nondepressed individuals in their self-reports. Thus, older adults experiencing negative affect may engage in less positive distortion of their health than older adults who are not experiencing negative affect. Results from a recent prospective study among older adults (Hansell & Mechanic, 1991) are consistent with this idea. The researchers found that individuals who reported high levels of psychological distress had increased body awareness and decreased self-assessed health over time.

The other interesting result was the asymmetrical relationship between perceived health and self-regulatory variables for hoped-for as opposed to feared selves. One conclusion to be drawn from this is that self-regulatory processes may operate differently in the pursuit of positive goals as opposed to negative goals. Over half of the variance in perceived health was explained by self-regulatory variables associated with one’s most important hoped-for self in the realm of health. A possible explanation for this finding is that this specific outcome expectancy is a manifestation of a more general optimistic orientation to the world. Schier and
Carver (1987), among others (e.g., Rakowski, 1984; Reker & Wong, 1985), discuss how a global sense of optimism can be prospectively related to health outcomes. They argue that optimism is a very general orientation to have positive outcome expectancies. In the framework of control theory, outcome expectancies are relevant for understanding behaviors, because they underlie decisions to continue striving, or to give up and disengage. To the extent that life consequences (e.g., satisfying personal relationships, owning a well-maintained home, being a healthy person) are dependent on personal effort and repeated persistence, continuation of engagement in the activities necessary to effect the desired outcome would seem to be a necessary, if not sufficient, component of an action plan. Thus, a tendency to "look on the bright side" will, over time, result in more favorable outcomes for individuals because they will have positive outcome expectancies that will keep them engaged in the necessary activities to complete the goals (see Taylor & Brown, 1988 for a discussion of how even illusory positive cognitions can be beneficial for health). Scheier and Carver (1987) and Scheier et al. (1989) report that, in the face of a serious threat to health, namely undergoing bypass surgery, optimists had fewer complications and were judged by medical practitioners to have a faster rate of recovery than did pessimists. Prior to surgery, optimists, in contrast to pessimists, were much more likely to be setting goals, making plans for recovery, and less likely to be focusing on negative affective states, such as nervousness and sadness. Thus, this active approach to coping with a health threat may be one of the mechanisms by which an optimistic orientation is linked to health. Positive expectancies in the realm of health may facilitate health-protective behaviors (e.g., Hooker & Kaus, in press; Scheier & Carver, 1987), which in turn make it more likely for health to be enhanced, and more positive expectations then arise. Thus, circular feedback functions in later life may serve to protect and maintain functioning, as well as engendering negative outcomes (cf. Kuypers & Bengston, 1973).

The fact that outcome expectancy for a feared health-related possible self was not predictive of perceived health suggests that "health pessimism" is unimportant for health. One might think that this is because feared health outcomes are due to uncontrollable circumstances, whereas positive health outcomes are contingent on effortful health practices. However, perceived efficacy was not significantly lower for feared health-related selves compared to hoped-for health-related selves. Thus, at least in regard to health in later life, it does not matter if the glass is half empty, as long as it's half full.

Limitations and future directions for research. — Although these studies provided theoretically interesting data on relationships between motivational aspects of the self and health, these results must be considered preliminary because of several methodological limitations. One such limitation is that the possible selves measure was administered in different ways for the two studies, which raises the possibility that method variance could account for at least some of the observed differences. Although there were no time restrictions in either the interview or the group-testing situation, perhaps the relative anonymity of the group situation allowed college students to generate more fantasy-based possible selves. However, the number and content of possible selves (other than health) was not a central issue for these studies.

Another limitation is that, although self-rated health is widely utilized and has been shown to be a reliable indicator of morbidity and mortality (e.g., Kaplan & Camacho, 1983; Mossey & Shapiro, 1982), it is a global measure that is an indicator of both mental and physical health (Hooker & Siegler, 1991). It would be desirable to have some objective indicators of health in conjunction with the subjective indicators that are so often used.

Obviously, causal relationships cannot be inferred with only a single measurement point. McClelland (1989) offers evidence of the prospective relationship between motivation and health among middle-aged adults. Holahan (1988) showed that goals were concurrently related to health and well-being in an older sample. There is a need for research that focuses on assessing individuals before and after a perceived health threat to see if that triggers images of self in the future that are health-related, which in turn motivate one to engage in health behaviors.

Most importantly, there is a real need for theoretically guided research on motivation in later life and how it differs from motivation at earlier points in the life span (Maehr & Kleiber, 1981). Theorists (e.g., Bühler, 1968; Pressley & Kuhnlen, 1957; Veroff, Reuman, & Feld, 1984; Wigdor, 1980) have attempted to take a life span view of motivation and end up proposing dominant motives that are ascendent at each life stage. However, it seems more likely that all motives are present to some degree across the life span, although perhaps they are expressed in different domains (Fiske, 1980). Lawton (1989) argues that we need to understand the essential tension between productivity in the service of growth and challenge, and docility in the service of security and maintenance of function. Hopes and fears for the self remain salient in later life, and older adults still have personal control over their own development (Brandstädter, 1989). The way in which future possibilities are construed has relevance for current behaviors and developmental outcomes.

Acknowledgments

This research was supported by NIH Grant BRSG-507-RR07068-23 and by a grant from the Syracuse University Gerontology Center.

I thank Susan Cross and Hazel Markus for making available their questionnaire measure of possible selves. I also thank Cheryl R. Kaus, M. Powell Lawton, Brian Mullen, and Renee Siegler for their comments on an earlier version of this manuscript. I am grateful to Sarah Edmonds, Robin Turco, Kim Shifren, Alexander Kirtland, and Rosanne David for assistance in collecting and coding the data.

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Received July 25, 1990
Accepted April 11, 1991