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Assessing Outcome Expectations in Older Adults: The Multidimensional Outcome Expectations for Exercise Scale

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Outcome expectations, an important element of social cognitive theory, have been associated with physical activity in older adults. Yet, the measurement of this construct has often adopted a unidimensional approach. We examined the validity of a theoretically consistent three-factor (physical, social, and self-evaluative) outcome expectations exercise scale in middle-aged and older adults (N = 320; M age = 63.8). Participants completed questionnaires assessing outcome expectations, physical activity, self-efficacy, and health status. Comparisons of the hypothesized factor structure with competing models indicated that a three-factor model provided the best fit for the data. Construct validity was further demonstrated by significant association with physical activity and self-efficacy and differential associations with age and health status. Further evidence of validity and application to social cognitive models of physical activity is warranted.

Key Words: Outcome expectations—Exercise—Older adults.

SOCIAL cognitive theory (Bandura, 1986, 2004) specifies a core set of psychosocial determinants (i.e., self-efficacy, outcome expectations, goals, and impediments) for a range of health behaviors, including physical activity. However, few empirical efforts have examined all these constructs simultaneously, with the majority focusing solely on self-efficacy and outcome expectations as potential behavioral predictors. Self-efficacy expectations encompass individual beliefs in one's capabilities to successfully execute a task and have been consistently identified as a correlate of physical activity (McAuley & Blissmer, 2000). Outcome expectations reflect beliefs that a given behavior will produce a specific outcome and have also been associated with physical activity (King, 2001; Williams, Anderson, & Winett, 2005), but less consistently. There are at least two potential reasons for this lack of consistency. In some cases, it may simply be that strong associations between self-efficacy and physical activity behavior reduce outcome expectations to a redundant predictor (Bandura, 1997). This is not to say that outcome expectations are unimportant in motivating behavior. For example, a physician's warnings about the dire consequences of continuing a sedentary lifestyle following diagnosis of heart disease (i.e., the outcome expectation) can act as a powerful motivator to becoming active. However, an active lifestyle is unlikely to be initiated unless one believes that he or she is capable of sustaining it on a regular basis (Bandura, 2000). Thus, in certain circumstances, outcome expectations may be a necessary but insufficient basis for action.

A second reason may lie in the design and content of the measures used to assess outcome expectations, particularly with older adults. With very few exceptions, measures used in the literature are single-dimension scales that, for the most part, are composed of a variety of relevant outcomes associated with the health behavior of interest. This is especially the case in the gerontological physical activity literature. However, Bandura (1997, 2004) has clearly and consistently noted that outcome expectations should lie along three related, but conceptually independent, subdomains representing physical, social, and self-evaluative outcome expectations. *Physical* outcome expectations reflect beliefs about pleasant and aversive physical experiences resulting from engagement in physical activity. *Social* expectations reflect beliefs about physical activity resulting in increased opportunities for socialization and attaining social approval. Finally, *self-evaluative* outcome expectations capture beliefs relative to the feelings of satisfaction and self-worth associated with involvement in physical activity. Whether these theoretically stipulated outcome expectations are differentially associated with physical activity under different conditions (e.g., engaging in exercise for rehabilitation vs. for general health) and among different populations (e.g., diseased vs. healthy, young vs. old) is not fully understood. This is largely due to measures of outcome expectations collapsing these subdomains across a single dimension leading to a blurring of their theoretical and conceptual differences (e.g., Conn, 1997; Gecht, Connell, Sinacore, & Prohaska, 1996; Kim, Horan, Gendler, & Patel, 1991; Resnick, Zimmerman, Orwig, Furstenberg, & Magaziner, 2000).

This study addressed this shortcoming by designing and confirming a three-factor structure for outcome expectations, as proposed by Bandura (1997), in a sample of middle-aged and older adults. We hypothesized that a correlated three-factor structure for the Multidimensional Outcome Expectations for Exercise Scale (MOEES) would fit the

Table 1. Sources of Outcome Expectation Items

Author(s)	Scale Title or Measure Description
Booth and coworkers (2000)	Perceived beliefs of physical activity
Clark and Nothwehr (1999)	Self-Efficacy and Outcome Expectations Measure
Conn (1997)	Outcome Expectation Questionnaire
Conn, Tripp-Reimer, and Maas (2003)	Beliefs about exercise outcomes
Hagger, Chatzisarantis, and Biddle (2001)	Attitudes toward physical activity
Jones, Harris, Waller, and Coggins (2005)	The Health and Fitness and Personal Development Now Scale
Kim and coworkers (1991)	Osteoporosis Health Belief Scale
Marcus, Rakowski, and Rossi (1992)	Decisional Balance Scale (as adapted for exercise)
Melillo, Williamson, Futrell, and Chamberlain (1997)	Physical Fitness and Exercise Activity of Older Adults Scale
Neff and King (1995)	Physical and psychological/behavioral outcomes from exercise
Plotnikoff, Blanchard, Hotz, and Rhodes (2001)	Decisional balance scales in the exercise domain
Resnick and coworkers (2000)	Outcome Expectations for Exercise Scale
Sechrist, Walker, and Pender (1987)	Exercise Benefits/Barriers Scale
Shaughnessy, Resnick, and Macko (2004)	Short Outcome Expectations for Exercise Scale
Steinhardt and Dishman (1989)	Outcome Expectancies Scale for Exercise

data well and that these factors would possess good internal consistency. Given the strong theoretical foundation upon which the development of this measure is based, we made several additional hypotheses relative to the construct validity of the measure.

First, we hypothesized that higher scores on the subscales of the MOEES (i.e., stronger outcome expectations) would be significantly and positively associated with higher levels of physical activity and stronger self-efficacy. Additionally, it is likely that any association between outcome expectations and physical activity would be attenuated when controlling for self-efficacy. Furthermore, Carstensen's (1992) socioemotional selectivity theory suggests that as we age, social contacts are reduced and the choice of social partners becomes more selective. Additionally, social integration has important implications for health (Seeman, 1996). Therefore, we also hypothesized that age would be more strongly associated with social outcome expectations than either self-evaluative or physical outcome expectations, which would, in turn, demonstrate discriminant validity among the subscales of the MOEES. Finally, we would expect physical outcome expectations to have a stronger association with physical health status than social or self-evaluative outcome expectations, again supporting the differential roles played by different types of outcome expectations.

Methods

Participant Recruitment

Adults (N = 349) aged 50 years and older were recruited from the community via flyers and electronic newsletters. Of those showing initial interest, 343 individuals agreed to participate and were mailed questionnaire packets. However, only 320 returned the questionnaires; reasons for nonparticipation included death during the period of data collection, failure to provide address information, and inability to contact participants after they expressed an initial interest.

Measures

Demographics.—A brief questionnaire assessed basic demographic information including sex, education, income, and marital and occupational status.

Outcome expectations.—The initial items for the MOEES were derived from a content analysis of other outcome expectations scales (N = 15; see Table 1), from which we identified 135 items broadly reflecting physical, social, and self-evaluative categories of outcome expectations as identified by Bandura (1997, 2004). Following exclusion of items for redundancy (e.g., "Exercise makes my muscles stronger," "Exercise increases my muscle strength"), poor content (e.g., "Exercise keeps people going"), and inaccuracy, that is, not reflecting an outcome expectation (e.g., "Exercise would take too much of my time"), the three investigators reached 100% agreement on a total of 31 items reflecting the three categories of outcome expectations for inclusion (15 items reflecting physical, 10 items reflecting self-evaluative, and 6 items reflecting social outcome expectations). Participants were asked to rate how strongly they agreed with each of these 31 items on a 5-point scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree).

Physical activity.—Two methods were used to assess physical activity. First, we used the Godin Leisure Time Exercise Questionnaire (GLTEQ; Godin & Shepard, 1985). The GLTEQ has been widely used in epidemiological, clinical, and behavioral change studies and is a simple, self-administered instrument assessing usual physical activity during the past seven days. The first question includes three open-ended items that measure the frequency of strenuous (e.g., jogging), moderate (e.g., fast walking), and mild (e.g., easy walking) exercise for periods of more than 15 min. The weekly frequencies of strenuous, moderate, and mild activities are multiplied by nine, five, and three metabolic equivalents, respectively, and summed to form a measure of total leisure time activity. The second question is ordinal, with three options, and measures the frequency of engaging in any regular activity long enough to work up a sweat during a typical week. However, we did not include the sweat index in the data analyses for this study. The second measure of physical activity was a single-item question that asked participants to indicate whether or not (i.e., yes or no) they currently met the public health recommendations by engaging in moderate intensity physical activities for at least 30 minutes on five or more days of the week.

Self-efficacy.—The Exercise Self-Efficacy Scale (McAuley, 1993) was used to assess participants' beliefs in their ability to continue exercising five times per week, at moderate intensities, for 30 or more minutes per session, and at 2-week increments over the next 12 weeks. This six-item scale is scored on a 100-point percentage scale comprising 10-point increments, ranging from 0% (not at all confident) to 100% (highly confident). A total scale score is derived by summing the responses to each item and dividing by the total number of items in the scale, resulting in a possible range of 0–100. Internal consistency for the measure in this study was excellent (α = .99). This measure has been used widely in the social cognitive literature in understanding physical activity (e.g., Duncan & McAuley, 1993; McAuley, Jerome, Marquez, Elavsky, & Blissmer, 2003).

Health status.—Two self-report measures assessed health status. First, we used the physical health status subscale of the 12-Item Short Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996), a shortened version of the SF-36 Health Survey. This is a well-validated measure of health status and health-related quality of life, with higher scores reflecting better health status. Our second measure was the 8-item disability limitations subscale of the abbreviated Late Life Function and Disability Instrument (LL-FDI; McAuley, Konopack, Motl, Rosengren, & Morris, 2005). The measure is scored on a 1–5 scale (1 = completely limited; 5 = not at all limited) with higher scores reflecting *fewer* limitations and, therefore, better health status. Internal consistency for this latter measure was excellent (α = .83).

Procedures

Individuals who responded to recruitment materials were initially contacted via telephone or e-mail to obtain their current mailing address. All study materials, including an Institutional Review Board–approved informed consent, as well as a self-addressed stamped envelope for returning completed materials, were then sent to participants via the U.S. Postal Service. Participants were asked to complete and return all materials within a two-week period. Up to three follow-up contacts were made to individuals failing to return study materials. Participants were also provided with an additional copy of the informed consent for their records and were encouraged to contact study staff with questions relative to the completion of the questionnaires. Upon receipt of completed study materials by the investigators, participants were automatically entered into a lottery to win one of twenty $50.00 cash prizes.

Data Analysis

Preliminary analyses.—Following the content analysis, we conducted an initial confirmatory factor analysis (CFA) to examine the strength of individual item loadings on the three hypothesized categories of outcome expectations and arrived at a final set of 19 items. This was followed by a series of CFAs to compare the final three-factor solution with a single-factor model reflecting the typical approach to measuring outcome expectations in the literature. Next, we split the sample into old (*M* age = 72 years) and middle-aged (*M* age = 54 years) groups and tested the final solution for factorial invariance. All data were analyzed using covariance modeling with the full-information maximum likelihood (FIML) estimator in *Mplus* V4.1 (Muthén & Muthén, 1998–2006). FIML is an optimal method for the treatment of missing data in structural equation modeling that has yielded accurate parameter estimates and fit indices with simulated missing data (Arbuckle, 1996; Enders, 2001; Enders & Bandalos, 2001). Missing data comprised 1.3% of physical outcome expectations data (n = 4), 1.3% of social outcome expectations data (n = 4), 1.6% of self-evaluative outcome expectations data (n = 5), 1.6% of GLTEQ data (n = 5), 0.9% of public health recommendations for physical activity data (n = 3), 1.9% of SF-12 physical health status data (n = 6), and 0.6% LL-FDI disability limitations data (n = 2).

Evaluation of model fit.—Several indices of model fit were used. The chi-square statistic assessed absolute fit of the model to the data (Jöreskog & Sörbom, 1996). Values for the root mean square error of approximation (RMSEA) of 0.06 or less were also used and are indicative of good model fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). Finally, we calculated the comparative fit index (CFI; Bentler, 1990) for which a value of 0.95 or greater indicates a good model-data fit (Hu & Bentler, 1999).

Construct validity.—In addition to factorial validity, several other analyses were conducted to examine the validity of the three hypothesized outcome expectations scales. First, we examined the theoretical associations between outcome expectations and both self-efficacy and physical activity. Importantly, partial correlations were conducted to determine whether any association between outcome

Table 2. Sample Demographics

Variable	Mean	SD
	$N=320$	
Age	63.8	9.6
	Frequency	
	n	%
Sex		
Female	257	80.1
Male	64	19.9
Race		
Asian	8	2.5
African American	28	8.8
Caucasian	283	88.7
Ethnicity		
Hispanic/Latino	5	1.7
Not Hispanic/Latino	297	98.3
Marital status		
Married	192	60.0
Significant other	10	3.1
Single	24	7.5
Divorced/separated	62	19.4
Widowed	32	10.0
Education		
<College	132	41.2
≥College	188	58.8
Employment status		
Full time	114	35.5
Part time	19	5.9
Retired, working part time	41	12.8
Retired, not working at all	120	37.4
Laid off/unemployed	6	1.9
Full-time homemaker	14	4.4
Other	7	2.2
Annual income		
<$20,000	26	8.5
<$40,000	72	23.5
≥$40,000	209	68.1

expectations and physical activity was attenuated when controlling for self-efficacy. Next, we conducted multivariate analyses of variance to compare the outcome expectations of those who were physically active and those who were not, based upon meeting public health recommendations for physical activity. Finally, correlational analyses determined whether the three types of outcome expectations were differentially associated with age and health status.

Results

Participant Characteristics

The mean age of the sample was 63.8 years (*SD* = 9.6; range 50–90 years). The majority of participants were women (80.1%), 59.8% were married, and 65.1% had an annual household income greater than $40,000. The majority of the sample (72.9%) was currently working full time or retired. The majority of the sample (88.7%) was White and well educated (58.8% with at least a college degree). Further details of participant characteristics are shown in Table 2.

Table 3. Final Scale Items and Standardized Factor Loadings

Item	Factor Loading
Physical outcome expectations	
Exercise will improve my ability to perform daily activities	0.70
Exercise will improve my overall body functioning	0.62
Exercise will strengthen my bones	0.65
Exercise will increase my muscle strength	0.67
Exercise will aid in weight control	0.65
Exercise will improve the functioning of my cardiovascular system	0.66
Social outcome expectations	
Exercise will improve my social standing	0.76
Exercise will make me more at ease with people	0.81
Exercise will provide companionship	0.58
Exercise will increase my acceptance by others	0.74
Self-evaluative outcome expectations	
Exercise will help manage stress	0.73
Exercise will improve my mood	0.80
Exercise will improve my psychological state	0.71
Exercise will increase my mental alertness	0.77
Exercise will give me a sense of personal accomplishment	0.61

Confirming the Factor Structure of the MOEES

The initial CFA using the 31 items to determine the strength of the item loadings on the hypothesized three-factor solution was a poor fit to the data ($\chi^2 = 1262.87$, $df = 431$, $p \leq .001$, RMSEA [90% confidence interval {CI}] = 0.08 [0.07–0.09], CFI = 0.83). Following deletion of items with substantial cross-loadings and retention of items initially loading at .55 or greater (moderate to strong associations), 19 items remained and a subsequent CFA was conducted. This model, although improved, still did not provide an acceptable fit to the data ($\chi^2 = 463.41$, $df = 149$, $p \leq .001$, RMSEA [90% CI] = 0.08 [0.07–0.09], CFI = 0.90). Although all the items loaded significantly on their hypothesized factors, a specification search suggested that the fit could be substantially improved by allowing several item residuals to be correlated. However, such covariation was not initially hypothesized, and it is possible that a more parsimonious factor structure exists. Thus, we deleted four items that covaried with more than one other residual and reflected redundancy with other items and then conducted a CFA on the remaining 15 items (i.e., 6 physical, 4 social, and 5 self-evaluative). This resulted in an excellent fit to the data ($\chi^2 = 149.94$, $df = 87$, $p \leq .001$, RMSEA [90% CI] = 0.05 [0.03–0.06], CFI = 0.97). Correlations between factors were significant and moderate to large (physical–self-evaluative, $r = .85$; physical–social, $r = .41$; and self-evaluative–social, $r = .53$). All scale items and their standardized factor loadings are shown in Table 3.

Next, we tested a single-factor model, the traditional approach in the literature, and this proved to be a very poor fit to the data ($\chi^2 = 494.89$, $df = 90$, $p \leq .001$, RMSEA [90% CI] = 0.12 [0.11–0.13], CFI = 0.79). In addition, this model was also significantly different from the hypothesized three-factor model ($\chi^{2diff} = 255.06$, $df = 3$, $p \leq .001$). Although the

Table 4. Mean (standard deviation) Values for Multidimensional Outcome Expectations for Exercise Scale Subscales for Total Sample and by Physical Activity Subgroups

Scale	Total	Active	Inactive	*t*-Test Statistic
Physical	26.38 (2.90)	27.00 (2.80)	25.86 (2.40)	3.53*
Social	12.70 (2.71)	13.23 (2.43)	12.16 (2.82)	3.58*
Self-evaluative	21.30 (2.59)	21.69 (2.43)	20.94 (2.64)	2.55*

Note: $^{*}p < .05$.

three-factor model appears to be the best fit to the data, there is clearly a strong correlation between the self-evaluative and physical outcome expectation factors. This might suggest that these two factors are simply representative of a single common structure, although conceptual arguments can be voiced for their separation. To test this position, we conducted an alternative two-factor CFA in which the self-evaluative and physical items loaded on a common factor. This model also provided a good fit to the data ($\chi^2 = 187.45$, $df = 89$, $p \leq .001$, RMSEA [90% CI] = 0.06 [0.5–0.07], CFI = 0.95). However, the chi-square difference test indicated that the three-factor model representing the physical, social, and self-evaluative outcome expectation categories, as proposed by Bandura (1986, 1997), provided a better fit to these data ($\chi^{2\text{diff}} = 37.52$, $df = 2$, $p \leq .001$).

An important element of establishing the factorial validity of any scale is demonstrating the extent to which the factor structure is invariant across populations. In the context of the present study with only one sample, our strategy was to test the measurement invariance of the MOEES by dividing the sample into middle-aged ($n = 151$; M age = 55.42 years) and older ($n = 154$; M age = 72.04 years) adults. The determination of measurement invariance occurred in several steps involving the testing of several nested models (Meredith, 1993) within the three-factor structure. In the first analysis, we examined the extent to which the number of factors and pattern of loadings was identical across groups (i.e., configural invariance). The results of this analysis suggested that this element of invariance was met ($\chi^2 = 282.66$, $df = 186$, $p \leq .001$, RMSEA [90% CI] = 0.06 [0.4–0.07], CFI = 0.95). The next analysis tested the equivalency of factor loadings across the two groups and is considered the minimum evidence necessary for establishing factor invariance (Marsh, 1994). This model also demonstrated good fit ($\chi^2 = 292.99$, $df = 198$, $p \leq .001$, RMSEA [90% CI] = 0.055 [0.4–0.07], CFI = 0.95) and was not significantly different from the configural invariance model ($\chi^{2\text{diff}} = 10.33$, $df = 10$, $p = ns$). Although these findings demonstrate invariance across age groups, we conducted one more analysis to determine whether the factor variances across groups differed. Once again, this model fit the data well ($\chi^2 = 293.27$, $df = 199$, $p \leq .001$, RMSEA [90% CI] = 0.054[0.4–0.07], CFI = 0.95). Again, this model was not significantly different from either the configural invariance model ($\chi^{2\text{diff}} = 10.61$, $df = 11$, $p = ns$) or the factor equivalency model ($\chi^{2\text{diff}} = 0.28$, $df = 1$, $p = ns$), providing further evidence for the factorial invariance of the MOEES.

Internal Consistency and Validity of the MOEES

All three outcome expectations scales possessed good internal consistency: physical ($\alpha = .82$), self-evaluative ($\alpha = .84$), and social ($\alpha = .81$). Table 4 shows the mean values for each of the MOEES subscales and physical activity subgroups for the complete sample. Being more active was significantly correlated with stronger physical ($r = .21$, $p < .001$) and self-evaluative ($r = .20$, $p < .001$) but not social outcome expectations ($r = .02$, $p = ns$). This was a pattern that was replicated when examining only middle-aged adults (i.e., greater activity was significantly correlated with stronger physical [$r = .18$, $p < .05$] and self-evaluative [$r = .14$, $p < .05$] but not social outcome expectations [$r = .01$, $p = ns$]). However, all three sets of outcome expectations were associated with being active in older adults (physical: $r = .32$, $p < .001$; self-evaluative: $r = .30$, $p < .001$; and social: $r = .20$, $p < .01$).

Higher self-efficacy was significantly associated with physical ($r = .22$, $p < .001$), self-evaluative ($r = .26$, $p < .001$), and social outcome expectations ($r = .17$, $p < .001$). As self-evaluative and physical outcome expectations were associated with physical activity, the next set of analyses examined the extent to which these correlations were attenuated when controlling for self-efficacy. Partial correlation analyses reduced the relationship between physical activity and self-evaluative outcome expectations from .14 to .12 and between physical activity and physical outcome expectations from .18 to .14, $p < .05$ (one-tailed test). A multivariate analysis of variance compared those participants who met public health guidelines for physical activity with those who did not on the three outcome expectation subscales. Those who met the guidelines had significantly higher outcome expectations for exercise along all three dimensions, $F(3, 310) = 6.74$, partial $\eta^2 = .06$, $p < .001$.

The next set of correlational analyses examined the extent to which the three outcome expectation scales were differentially related to age and health status. Older participants had significantly stronger beliefs about social outcomes resulting from exercise ($r = .27$, $p < .001$), whereas being younger was associated with higher physical outcome expectations ($r = -.14$, $p < .05$). Self-evaluative expectations were unrelated to age ($r = -.04$, $p = ns$). As hypothesized, physical outcome expectations were more strongly associated with physical health status as measured by the SF-12 ($r = .19$, $p < .001$) than either social ($r = .07$, $p = ns$) or self-evaluative expectations ($r = .12$, $p < .05$) were. Additionally, we observed a decreasing pattern of correlations between disability limitations and physical ($r = .22$, $p < .001$), self-evaluative ($r = .09$, $p = ns$), and social outcome expectations ($r = -.05$, $p = ns$). We next conducted a one-tailed significance test to determine whether these correlations differed.

The difference between the physical and self-evaluative outcome expectations correlations approached significance, $z = 1.41$, $p = .08$. The physical and social expectations correlations were significantly different, $z = 3.15$, $p = .001$, as were the social and self-evaluative expectations correlations, $z = 1.74$, $p = .04$.

Discussion

This study examined the psychometric properties of a newly developed multidimensional outcome expectations for exercise scale in a sample of middle-aged and older adults. The underlying theoretical rationale for such an endeavor has its foundation in Bandura's (1997, 2004) position that outcome expectations play an important role in a social cognitive model of behavior and that such expectations should be assessed along three dimensions: physical, social, and self-evaluative. Moreover, other attempts to assess outcome expectations have typically collapsed items from each of these dimensions into a single scale. This may be a potential reason for the somewhat ambiguous relationship between physical activity and outcome expectations reported in the literature.

CFAs testing several alternative factor structures suggested that a three-factor model fit the data best, providing initial factorial and construct validity for the MOEES based on a hypothesized theoretical structure. Moreover, by splitting the sample into older and middle-aged groups, we were able to provide some initial evidence for the measurement invariance of the MOEES. We acknowledge that this is not the optimal approach to assessing invariance as the two groups were drawn from within the initial validation sample. Indeed, we now call for cross-validation of the MOEES factor structure in other samples to determine measurement invariance across age, sex, and potentially disease status. Effective demonstration of factorial invariance and subsequent demonstrations of construct validity would set the stage for further examination of outcome expectations in a comprehensive social cognitive model of physical activity behavior change.

Further construct validity was demonstrated by significant correlations with theoretically relevant variables. For example, more active individuals, as well as more efficacious participants, reported higher expectations for positive outcomes relative to exercise participation. Such associations are in line with social cognitive theory (Bandura, 1997, 2004). In addition, older individuals reported stronger social outcome expectations reflecting outcomes such as meeting new people, being with friends, and companionship. Such findings are in accord with a considerable literature linking social factors to physical activity participation (e.g., Booth, Owen, Bauman, Clavisi, & Leslie, 2000). In contrast, being younger was associated with stronger physical outcome expectations, which may be associated with possible appearance-related motives for exercising (Hausenblas, Brewer, & Van Raalte, 2004). Furthermore, we were able to demonstrate that the three outcome expectations scales were differentially related to dependent variables representing elements of health status. For example, those individuals with better perceived physical health and fewer limitations due to disability reported higher expectations for physical activity relative to physical outcomes as opposed to social or self-evaluative outcome expectations.

We believe that the development of the MOEES and the presentation of initial evidence for the scale's reliability and validity represent important methodological steps forward in the measurement and potential application of outcome expectations to understanding and predicting physical activity behavior in older adults. We note that numerous other outcome expectations scales for exercise exist in the literature. However, most of these scales are unidimensional in composition and fail to consider the theoretical and conceptual distinction between different types of outcome expectations (Bandura, 1997, 2004). Acknowledging this distinction has important ramifications for understanding exercise and other health behaviors. In many respects, this may be influenced by the relative value that older adults may place on physical, social, and self-evaluative outcomes derived from physical activity participation. For example, if one joins an exercise program for the sole reason of improving one's physical health and, due to the low intensity or duration of activity, this outcome is not attained, then one might be more likely to cease participation altogether. The same is true of social and self-evaluative outcomes. Thus, understanding what outcomes the individual expects to achieve as a result of participation may be an important assessment for exercise leaders to consider. Such information would allow the exercise sessions and environments to be structured to maximize the realization of these expectations.

There has been some limited evidence that the provision of self-efficacy–laden physical activity interventions can have a positive influence on adherence (McAuley, Courneya, Rudolph, & Lox, 1994; McAuley et al., 2007). Implementing creative strategies to effectively increase initially low outcome expectations may be a useful approach for enhancing other social cognitive factors. Additionally, it is wholly likely that the different categories of outcome expectations may assume more, or less, importance depending on the nature of the sample. For instance, in rehabilitation settings in which physical activity plays an important role, physical outcome expectations may be more salient in the initial stages of the rehabilitative process. As progress is made, self-evaluative expectations might assume a more important role as progress is recognized and acknowledged by others, thereby leading to increased feelings of satisfaction and self-worth. Similarly, older adults joining exercise programs for social reasons may find that physical and self-evaluative expectations become more salient as social expectations are satisfied. Although there have been numerous empirical reports of exercise participation leading to increases in self-efficacy (for a review, see McAuley & Blissmer, 2000), there have been conspicuously few attempts at examining changes in outcome expectations across time. The multidimensional structure of the MOEES offers a unique measurement opportunity to effectively examine changes in outcome expectations as a function of physical activity participation. In turn, the extent to which such changes are useful in predicting behavioral change might also be determined.

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