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Correlates of Functional Fitness in Older Adults

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Abstract

Background—Self-efficacy has been shown to be both an antecedent and determinant of behaviors such as physical activity and may explain variance in the performance of functional tasks among older adults.

Purpose—The objectives of the current study were: first, to identify potential latent factors of functional fitness (i.e., the ability to perform activities of daily living) among older adults; and second, to determine the extent to which self-efficacy contributed to the variance in functional fitness over and above other known correlates.

Methods—Older adults ($n = 190$, M age = 69.4 years) completed a functional fitness test battery, maximal graded exercise test, and demographics and self-efficacy questionnaires.

Results—Structural equation modeling supported two latent factors of functional fitness representing “Flexibility” and “Physical Power.” Further analyses indicated sex as the sole significant correlate of Flexibility. Greater Physical Power was associated with being male, younger, and having higher self-efficacy.

Conclusions—These results support the role of self-efficacy as a correlate of performance on functional tasks. Targeting flexibility and physical power to improve functional fitness among older men and women, respectively, warrants examination.

Keywords

latent factors; self-efficacy; aging; health; function

According to data from the National Center for Health Statistics, Americans are living longer, with life expectancy for those born in 2002 at 77.3 years, up from 71.2 in 1972 (CDC, 2006).

However, the quality of those additional years may be somewhat compromised, with over 34% of adults age 65 or older reporting limitations with even the most basic activities of daily living (ADLs), such as bathing and dressing (CDC, 2006). Within Nagi's disability framework (Nagi, 1965, 1991), decreased physical capacity (e.g., muscular strength and endurance, flexibility, agility, and balance) leads to impairment in functional tasks (e.g., standing up from a seated position, lifting light weights, etc.), potentially leading to difficulties maintaining personal and social roles (i.e., disability). Indeed, decreased lower body strength has been identified as a powerful predictor of disability onset in later years (Gill, Williams, Richardson, & Tinetti, 1996; Guralnik, Ferrucci, Simonsick, Salive, & Wallace, 1995; Lawrence & Jette, 1996). As quality of life in later years has been argued to be largely dependent upon the sustained ability to independently engage in self-selected activities (Rikli & Jones, 2001), research efforts to identify determinants of function in older adults are becoming increasingly important and are consistent with current public health objectives (Rejeski, Brawley, & Haskell, 2003).

Functional fitness is the capacity to perform normal daily activities in a safe and independent fashion without undue fatigue or pain (Rikli & Jones, 2001). In developing the Senior Fitness Test to assess the functional fitness of older adults, Rikli and Jones (2001) utilized a conceptual framework that builds upon the progressive relationship among physical parameters, functional abilities, and activity goals, consistent with the disability models of Nagi and others (Lawrence & Jette, 1996; Nagi, 1991; Rikli & Jones, 1997). Based upon this framework, Rikli and Jones identified muscular strength, aerobic endurance, flexibility, agility/dynamic balance, and body mass index as distinct components of functional fitness.

However, whether these components are independent of each other or can be represented by underlying latent factors remains to be determined. For example, the Arm Curl, 8-Foot Up-and-Go, and Chair Stand Tests, in combination with cardiorespiratory fitness, might be categorized as elements of physical power, whereas the Chair Sit-and-Reach and Back Scratch tasks clearly represent a flexibility component of fitness. Alternatively, these measures may all load on a common factor of "functional fitness." The benefit to identifying the presence of a common factor or factors would be in summarizing the relationships among measures that comprise functional fitness and thereby clarifying the conceptualization of "functional fitness" and its relationship with other parameters, including known correlates of functional fitness.

Age is undeniably a correlate of functional fitness. Advancing age is associated with progressively diminished muscular strength and size (Evans, 1995), thereby creating greater variability in functional fitness with age. This reduction in muscular size and strength may negatively impact one's performance of normal daily activities, as strength is commonly thought to be a key component of functional fitness (Rikli & Jones, 2001). Indeed, in addition to reductions in muscular strength, aging is typically associated with impaired mobility and restricted flexibility (Daley & Spinks, 2000). Therefore, as a result of these temporal anthropomorphic changes, chronological age is hypothesized to explain a significant amount of inter-individual variation in the performance of functional tasks.

In addition, biological sex has been established as a correlate of certain aspects of functional fitness. For example, aerobic fitness varies according to biological sex, with males typically having higher cardiorespiratory fitness relative to body mass than women. On the contrary, women tend to be significantly more flexible than men (Hui & Yuen, 2000). Generally, men also have greater muscular strength in both the upper and lower body than women (Janssen, Heymsfield, Wang, & Ross, 2000), and strength improvements have been associated with concomitant increases in performance of functional tasks such as walking and stair climbing (McCartney, Hicks, Martin, & Webber, 1996). Therefore, biological sex was hypothesized to correlate with all aspects of functional fitness.

Psychosocial factors may also be implicated in the performance of functional tasks. For example, perceptions of control have been consistently identified as important correlates of enhanced physical and psychological health (Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002; Rodin, 1986). Such perceptions have been conceptualized within Bandura's (1997) social cognitive theory as self-efficacy expectations, or the beliefs in one's capabilities to successfully execute specific behaviors. These expectations have been shown to influence and be influenced by physical activity (McAuley & Blissmer, 2000). Self-efficacy perceptions may therefore be reasonably expected to influence and be influenced by functional activities, although evidence associating self-efficacy with functional fitness is limited. It was hypothesized, therefore, that self-efficacy will account for variance in functional fitness independent of the contributions of age and sex.

Thus, there were two objectives of the current study. The first objective was to identify latent factors that may underlie commonly employed measures of functional fitness in older adults. The second objective was to test the hypothesis that self-efficacy would emerge as an independent and significant correlate of these factors of functional fitness.

Method

Participants

Data for the current study ($n = 190$) were collected as part of baseline assessments of participants entering a randomized controlled exercise trial. Inclusion criteria required that participants were: (a) sedentary, as defined by a lack of regular involvement in exercise during the previous six months verified by exercise history; (b) healthy to the degree that participation in exercise testing and an exercise program would not exacerbate any existing symptomology; (c) personal physician's clearance for participation; (d) adequate mental status, as assessed by the Pfeiffer Mental Status Questionnaire (Pfeiffer, 1975); and (e) willingness to be randomly assigned to a treatment condition. Participants were older adults (M age = 69.4 years, range 58–84 years), primarily White ($n = 179$) and female ($n = 125$). Further demographic and health status information has been provided in Table 1.

Measures

Demographic and Health Status Information—Each participant was asked to provide current demographic information including age, sex, race, education, annual income, and marital status. Additionally, medical history and health status information were obtained from participants' primary physicians as a part of medical clearance for the study (also in Table 1). Responses to cardiovascular disease, hypertension, arthritis, hyperlipidemia, diabetes, cancer, and osteoporosis were scored 1 for "yes" and 0 for "no" and summed to provide a score ranging from 0–7, which was included as an indicator of health status in subsequent analyses.

Functional Performance—Individuals completed five items from the Senior Fitness Test (Rikli & Jones, 2001). These included the 8-Foot Up-and-Go, a test of physical agility and dynamic balance; the Chair Stand test, which assessed lower body muscle strength and endurance; the Arm Curl test, which assessed arm muscle strength endurance, specifically of the biceps; the Chair Sit-and-Reach, a test of lower body flexibility; and the Back Scratch Test, which assessed upper body flexibility, particularly of the shoulders. Detailed descriptions of these items can be found elsewhere (Rikli & Jones, 2001). Scores for the 8-Foot Up-and-Go test were recorded as the time it took for the participant to complete the exercise, with times measured to the nearest tenth of a second. Scores on this test were recoded by subtracting the recorded time from a constant of 20, such that higher scores would reflect a better performance, consistent with the other functional measures. Scores on the Chair Sit-and-Reach as well as Back Scratch tests were recorded to the nearest inch, with more positive scores reflecting

greater flexibility, and scores on the Chair Stand and Arm Curl tests represent the number of successful repetitions performed over a 30-sec interval.

Aerobic Fitness—Aerobic fitness was assessed as peak oxygen uptake obtained during maximal graded exercise test using a ParvoMedics TrueMax metabolic system. The participants performed an individualized protocol walking at a minimum speed of 3 mph on a 0% grade and increasing by a 2–3% grade every 2 min until volitional termination. Electrocardiographic, cardiorespiratory, and hemodynamic responses were monitored continuously. The highest observed value of VO_2 was considered the peak oxygen uptake. In the Senior Fitness Test (Rikli & Jones, 2001), the 6-Minute Walk test is used to assess aerobic fitness. However, as $\text{VO}_{2\text{max}}$ is considered the gold standard assessment of aerobic fitness (McArdle, Katch, & Katch, 2001), we elected to use this more precise measure in place of the 6-Minute Walk test or other estimates of aerobic fitness.

Self-Efficacy—The Exercise Self-Efficacy Scale (McAuley, 1993) was employed to assess individuals' beliefs in their ability to exercise continuously at a moderate intensity for 40 min three times per week or more in the future. Each of the 6 items was scored on a Likert-type scale ranging from 0% (not at all confident) to 100% (highly confident). Total strength for the measure was calculated by summing the confidence ratings and dividing by the total number of items in the scale, resulting in efficacy scores potentially ranging from 0 to 100. Internal consistency in the present study was excellent ($\alpha = .99$).

Procedures

Participants responded to media announcements advertising an exercise program for older adults. Upon completion of the initial telephone screening interview and medical clearance, participants were scheduled for assessment in our laboratory. Prior to testing, participants completed an approved Institutional Review Board informed consent and questionnaires assessing basic demographic information and self-efficacy. Aerobic fitness was determined upon completion of a maximal graded exercise test in our laboratory.

Participants returned to complete the battery of functional fitness tests in a large gymnasium adjacent to our laboratory. Researchers who were specifically trained to administer the five assessments of functional fitness conducted the tests in accordance with the instructions and recommendations of the developers of the Senior Fitness Test (Rikli & Jones, 2001).

Data Analysis

Analysis of the data took place in a series of steps. First, we conducted a correlational analysis to inspect the pattern of relationships among the six functional fitness measures (i.e., five Senior Fitness Test items plus $\text{VO}_{2\text{max}}$ test). Then, based on these relationships, we used a series of structural equation modeling (SEM) analyses to simultaneously test both of our hypotheses. There were several reasons for selecting this statistical approach over other methods. For example, testing our first hypothesis required confirmatory factor analysis procedures to verify the existence of underlying latent factors of functional fitness. This is easily accomplished using SEM procedures. Second, assuming the confirmation of latent factors of functional fitness, we would then test our second hypothesis (i.e., the extent to which self-efficacy emerged as an independent correlate of functional fitness). Whereas testing the latter hypothesis could technically be carried out using six linear multiple regression procedures, reporting such findings would be cumbersome, and interpretation would be difficult. SEM allows for a more powerful and accurate test of structural relations among theoretical constructs, as the relationships are not biased by measurement error. SEM procedures, therefore, allowed us to simultaneously test both the measurement model (i.e., the first hypothesis, specifying latent factors of functional fitness) and the structural model (i.e., the

second hypothesis, evaluating self-efficacy's contribution to these factors beyond that of known correlates).

SEM is a method of covariance modeling that employs multivariate statistics in analyzing covariance matrices. To perform these analyses, we used Mplus Version 3.11 (Muthén & Muthén, 1998–2004) covariance modeling software. Because there were missing data in our sample, we employed the full-information maximum likelihood (FIML) estimator. FIML uses all available data (“full information”) to estimate missing data points, a common technique in SEM that involves less bias and is more efficient than other *ad hoc* techniques to deal with missingness (Arbuckle, 1996; Enders, 2001; Enders & Bandalos, 2001). Thus, employing FIML in Mplus enabled us to maximize the amount of data to be used for analysis. Additionally, we examined the standardized path coefficient (β) as a statistic reflecting the unique contribution of each variable to variance in the latent factor within each analysis. This statistic is conceptually similar to the standardized regression coefficient typically reported in multiple regression analysis.

Model Fit

In simultaneously testing our two hypotheses, we were interested in the fit of the hypothetical models to the data. We employed several fit indices common to SEM to indicate how well our specified models fit the sample data. These included the chi-square statistic, Standardized Root Mean Square Residual (SRMR), and Comparative Fit Index (CFI). Briefly, the chi-square statistic assesses perfect fit of the model to the data (Bollen, 1989), with a non-significant chi-square indicating goodness of fit. The SRMR is the average of the standardized residuals between the specified and obtained variance-covariance matrices. The SRMR should be less than .08 to indicate good model-data fit (Hu & Bentler, 1999). The CFI is an incremental fit index that tests the proportionate improvement in fit by comparing the target model to a baseline model with no correlations among observed variables (Bentler, 1990; Bentler & Bonett, 1980). Values approximating 0.95 (CFI) or greater are indicative of an acceptable and good model-data fit (Bentler, 1990; Bentler & Bonett, 1980; Hu & Bentler, 1999). When interpreting SEM output, one considers the chi-square statistic in conjunction with the SRMR and CFI to determine the fit of the model to the data.

Extent of Missing Data

Missing data comprised 2.1% of Chair Stand data ($n = 4$), 0.5% of Arm Curl data ($n = 1$), 12.1% of $\text{VO}_{2\text{max}}$ data ($n = 23$), and 1.6% of self-efficacy data ($n = 3$). There were no missing data for any of the other variables.

Results

Descriptive Statistics

Mean scores and standard deviations for all measures included in the data analyses are presented in Table 2.

Correlation Analyses

Correlations among the functional fitness measures are shown in Table 3. As can be seen, scores on the Chair Stand, Arm Curl, and 8-Foot Up-and-Go Tests were all significantly correlated with one another as well as aerobic fitness as indicated by VO_2 ($p < .01$). Both the Chair Stand and the Arm Curl Tests also correlated significantly, but inversely, with scores in the Back Scratch Test ($r = -.19$ and $-.30$, respectively, $p < .01$). The Chair Sit-and-Reach Test was only significantly correlated with the Back Scratch Test ($r = .21$, $p < .01$). Correlations between functional fitness measures and other study variables have been provided in Table 4.

Latent Functional Fitness Factors and their Correlates

Given the correlations among the functional fitness indicators in Table 3, there was little wisdom in attempting to fit a single “functional fitness” factor model to the data. Instead, we attempted to fit a two-factor correlated model of “Flexibility” (i.e., Chair Sit-and-Reach and Back Scratch tests) and “Physical Power” (i.e., Chair Stand, Arm Curl, 8-Foot Up-and-Go, and VO_{2max} tests). This proved to be a poor fit, as indicated by a significant chi-square ($\chi^2 = 55.15$, $df = 20$, $p < .0001$) and poor CFI (.86). Subsequently, we tested two independent models for “Flexibility” and “Physical Power,” as depicted in Figure 1.

Flexibility

The proposed single factor model for Flexibility with the observed variables of the Chair Sit-and-Reach and Back Scratch tests and predictor variables of age, sex, and self-efficacy represented a good fit for the data ($\chi^2 = .80$, $df = 2$, $p = .67$, SRMR = .01, CFI = 1.00). Parameter estimates are shown in Table 5. Interestingly, of the four predictor variables, only sex was significant, with women being more flexible than men ($\beta = -.51$, $p < .001$). Altogether, however, the four correlates accounted for 28% of the variation in the latent flexibility factor.

Additionally, given that demographic factors (e.g., income, education) and health status are very likely to influence the relationships tested in the model, we have included these variables in the tested model as covariates. The inclusion of these variables did not change the direction or significance of the paths or the overall fit of the model ($\chi^2 = 4.51$, $df = 5$, $p = .48$, SRMR = .02, CFI = 1.00). Thus, the final model including those covariates is reported in Figure 1.

Physical Power

The proposed single factor model for physical power with the observed variables of the Chair Stand, Arm Curl, and 8-Foot Up-and-Go tests along with VO_{2max} and predictor variables age, sex, and self-efficacy, represented a relatively poor fit for the data, as the chi-square proved significant, although the fit indices were in acceptable ranges ($\chi^2 = 31.73$, $df = 11$, $p < .001$, SRMR = .05, CFI = .90). A *post hoc* specification search indicated that allowing a correlation between the residuals of the Arm Curl and Chair Stand tests would substantially improve the fit of the model. This modification made conceptual sense, as the Arm Curl and Chair Stand tests share characteristics that differ from both the 8-Foot Up-and-Go test and VO_2 . For example, whereas the Arm Curl, Chair Stand, and 8-Foot Up-and-Go are all performance items of the Senior Fitness Test (Rikli & Jones, 2001), only the latter uses time as a scoring variable, whereas the former two both assess number of repetitions over a 30-sec timeframe.

Additionally, the Arm Curl and Chair Stand involve motion in a single plane (i.e., standing up and down, curling weights up and down), whereas the 8-Foot Up-and-Go is a more complex test involving balance, speed, and agility in transferring (i.e., sitting, standing, walking, turning). Indeed, after adjusting the model to allow scores on the Arm Curl and Chair Stand to correlate, the model showed a much improved fit ($\chi^2 = 18.03$, $df = 10$, $p = 0.05$, CFI = 0.96, SRMR = 0.04). Moreover, the fit of the model was a statistically significant improvement ($\chi^2 = 13.70$, $df = 1$, $p < .001$). Parameter estimates can be seen in Table 5. Inspection of the loadings of the hypothesized correlates indicated that being male ($\beta = .40$), younger ($\beta = -.41$), and more efficacious ($\beta = .27$) were associated with greater levels of physical power ($R^2 = .44$). Additional model testing using income, education, and health status as covariates did not change the overall fit of the model ($\chi^2 = 23.76$, $df = 19$, $p = 0.21$, CFI = 0.98, SRMR = 0.03); the final model including those covariates is reported in Figure 1.

Discussion

This study had two principal objectives, the first of which was describing the latent factor structure that underlies functional fitness variables. In so doing, we attempted to reduce the six items of functional fitness to a single latent factor encompassing functional fitness in an effort

to more parsimoniously examine these relationships. This proved difficult to accomplish, as the correlations across tasks were modest. However, we were able to confirm two underlying factors of functional fitness, termed “Physical Power” and “Flexibility.” Moreover, our second objective tested the independent contribution of self-efficacy to variation in these two latent constructs. Our results demonstrated that only sex, and not self-efficacy, was a significant correlate of Flexibility. However, self-efficacy was shown to account for a significant portion of Physical Power in a model that explained 44% of the total variance in this construct.

The Physical Power latent factor was represented by performance on the Chair Stand, Arm Curl, 8-Foot Up-and-Go, and VO₂. Similar combinations of functional tasks have been employed elsewhere as outcomes of progressive resistance training programs among older adults, referring to the tasks collectively as a measure of “muscle power” (Hruda, Hicks, & McCartney, 2003). Thus, the structure of physical power in the current study is conceptually supported in the literature.

In terms of Physical Power correlates, younger individuals outperformed older individuals, as would be expected, given that strength is dramatically reduced between the ages of 25 and 80 as a result of a 40–50% reduction in muscle mass (Lexell, Taylor, & Sjostrom, 1988). Additionally, being male was associated with more Physical Power, in support of literature describing the influence of biological sex on aerobic fitness, speed, and agility (Steffen, Hacker, & Mollinger, 2002).

Self-efficacy accounted for significant variance in the Physical Power latent construct above and beyond the contributions of age and sex. Although there is only limited literature pertaining to psychosocial correlates of functional fitness, there is some evidence to suggest that social cognitive factors, particularly self-efficacy, act as determinants of functional performance. For example, self-efficacy has been reported to account for significant variance in stair-climbing speed and self-reported difficulty with functional tasks among individuals with osteoarthritis (Rejeski, Craven, Ettinger, McFarlane, & Shumaker, 1996). Additionally, self-efficacy has been identified as a significant predictor of self-reported functional performance among individuals with COPD (Siela, 2003). A recent study has noted that psychosocial factors accounted for a significant portion of performance variance in assessments of static strength, endurance, lifting speed, and lateral and anterior-posterior sway (Rudy, Lieber, Boston, Gourley, & Baysal, 2003). Indeed, in this study by Rudy et al., self-efficacy emerged as the best predictor of these performance outcomes. Clearly, our results support that self-efficacy is associated with the successful execution of functional fitness tasks, particularly those involving Physical Power.

Only sex emerged as a significant, independent correlate of the Flexibility factor, with women being more flexible than men in this sample. The presence of sex but not age as a correlate of flexibility is congruent with other studies that have suggested that the small difference in range of motion (ROM) between younger and older individuals is not clinically significant (Roach & Miles, 1991). Additionally, Rikli and Jones (1999) reported that women were more flexible than men on both the Chair Sit-and-Reach and Back Scratch tests across all age groups, and other studies have reported greater ROM in older women than in older men (Svenningsen, Terjesen, Auflem, & Berg, 1989; Walker, Sue, Miles-Elkousy, Ford, & Trevelyan, 1984). In addition to providing further support for these established relationships, the results of the current study suggest that self-efficacy may not be a significant determinant of flexibility, in contrast to what was hypothesized. This is potentially due to our measure of self-efficacy, which was specific to exercise behavior rather than to flexibility. Although the generality principle of social cognitive theory (Bandura, 1997) suggests that efficacy measures of *similar* constructs should be predictive of other types of behavior, this appears not to be the case here. Subsequent examinations of the efficacy and flexibility association are encouraged

to use measures that tap confidence in being able to successfully carry out flexibility-related tasks.

Although the present study contributes to the literature by identifying latent factors underlying functional fitness and confirming self-efficacy as a significant correlate of Physical Power, it is important to underscore that these are cross-sectional data employing a relatively homogenous sample. Because of the relative homogeneity of the sample, it is unclear whether these results also hold true for more diverse populations in terms of ethnicity and education. Additionally, the individuals in the current study were sedentary, and our findings may not generalize to older adults with a wider range of functional abilities. Moreover, as the current study is cross-sectional, it is possible that the relationships between latent factors of functional fitness and the correlates described herein are bi-directional. Future work is needed to establish directionality in these relations, such as that between Physical Power and self-efficacy. Whether the correlates identified herein also account for change in functional fitness over time, as in an exercise training program, remains to be determined. Such training studies would add insight into the trajectory of functional fitness over time and identify additional factors, such as physical activity, that may be helpful in explaining changes in functional fitness. Additionally, longitudinal tests of the latent factors identified herein are warranted. Finally, it will also be important to consider other factors that may be associated with strength and flexibility variance in advanced years. For example, genetic factors, body composition and stature, as well the differential leisure time and occupational physical activity behavior exhibited by different cultures, all have implications for functional fitness among older adults.

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Figure 1.
Final models of determinants of functional fitness after controlling for education, income, and health status.

Table 1

Demographic and Health Status Information

Variable	<i>n</i>	%
Demographics		
Sex (female)	125	65.8
Race (White/Caucasian)	179	94.2
Marital status (married)	117	61.6
Education (college graduate or more)	103	54.3
Health Status		
Cardiovascular disease	19	10.0
Hypertension	80	42.1
Arthritis	42	22.1
Hyperlipidemia	67	35.3
Diabetes	27	14.2
Cancer	16	8.4
Osteoporosis	31	16.3

Table 2

Descriptive Statistics for All Measures

Measure	<i>M</i>	<i>SD</i>
Self-Efficacy	75.75	28.43
Aerobic Fitness (ml/kg/min)	20.22	5.13
Chair Stand	11.45	3.03
Arm Curl	13.91	4.18
Chair Sit-and-Reach (inch)	−0.73	3.61
Back Scratch (inch)	−3.43	4.19
8-Foot Up-and-Go (sec)	13.82	1.26

Table 3

Correlations between Functional Fitness Measures

	1.	2.	3.	4.	5.
1. Chair Stand	1.00				
2. Arm Curl	.507*	1.00			
3. Chair Sit-and-Reach	-.053	-.016	1.00		
4. Back Scratch	-.192*	-.300*	.212*	1.00	
5. 8-Foot Up-and-Go	.463*	.333*	.119	.017	1.00
6. Aerobic Fitness	.314*	.251*	.003	-.061	-.388*

*
 $p < .01$.

Table 4

Correlations between Functional Measures and Correlates

	Sex	Age	Self-Efficacy
Chair Stand	.230**	-.202**	.209**
Arm Curl	.311**	-.132	.144
Chair Sit-and-Reach	-.175*	.010	-.005
Back Scratch	-.339**	-.113	-.007
8-Foot Up-and-Go	-.192**	.383**	-.230**
Aerobic Fitness	.346**	-.258**	.268**

*
 $p < .05$;**
 $p < .01$.

Table 5

Parameter Estimates for Correlates of Flexibility and Physical Power

Latent Factor	Predictor	Standardized Path Coefficient (β)	<i>t</i> Value
Flexibility	Age	-0.15	-1.50
	Sex	-0.51	-5.07*
	Self-Efficacy	-0.02	-0.17
Physical Power	Age	-0.41	-4.68*
	Sex	0.40	4.58*
	Self-Efficacy	0.27	3.36*

*
 $p < .05$.