Reliability and Validity of the Physical Activity Self-Efficacy Scale in Turkish Children

Ayse Meydanlioglu, Ayse Ergun
Akdeniz University, Faculty of Nursing, Department of Public Health Nursing, TURKEY

Abstract

Introduction: This study investigated the reliability and validity of the Physical Activity Self-Efficacy Scale (PASES) in Turkish children. Material and Methods: Analyzed were internal reliability among 437 children in the 4th -8th grades and test-retest stability among 69 children. The PASES consists of 5 items regarding physical activity self-efficacy. Content validity, construct validity, internal consistency and stability reliability of the PASES were assessed. Results: Item-total correlations were found to be 0.50-0.70 and at a statistically significant level (p < 0.001). Results of the exploratory factor analysis established that the scale had a one-factor construct in this student population. The Cronbach's Alpha and the Split-Half Reliability Coefficient were found to be 0.65 and 0.67 respectively. Test–retest results showed stability for PASES. Conclusions: The validity of the PASES was found to be high from the point of view of content and criteria, while the reliability was found to be moderate. The scale can be used to determine the physical activity self-efficacy levels of literate primary school students..

Keywords: *Self-Efficacy, Child, Reliability, Validity*

1. Introduction

Physical activity is an evidence-based strategy that is beneficial for both physical and mental human health (Floriani and Kennedy, 2008; American Health Assosiation [AHA], 2012). Today, increasing physical activity is considered to be as important as smoking cessation, healthy nutrition, and prevention of obesity in minimizing the burden of non-communicable diseases (Bauman et al., 2006; Floriani and Kennedy, 2008; AHA, 2012)

The habit of physical activity is generally formed during childhood and carried into adulthood (Pivarnik and Pfeiffer, 2002; AHA, 2010; Krakow, 2011). There is an important relationship

between increased physical activity among children and decreased cardiovascular diseases and increased life expectancy (AHA, 2012). Helping individuals develop the habit of regular physical activity starting from childhood is crucial for protecting individual health and reducing future health risks (CDC, 1997; WHO, 2003; Bek, 2008).

The recent decrease in physical activity due to the increase in passive activities, such as watching TV and videos and using computers, is considered to be an important public health problem (Vaizoglu et al., 2004; Arslan et al., 2006; Kudas et al., 2005). Physical inactivity is becoming increasingly common among children in Turkey. In a study conducted by Ucar et al. in Eskisehir, 20.7% of the girls and 14.5% of the boys in the 7-18 age group were found to be physically inactive. In another study conducted by Vaizoglu et al. (2004) with the participation of children aged 14-17, it was found that 35.7% of the girls and 16.2% of the boys were physically inactive. In a study conducted by Kudas et al. (2005) with the participation of 5th and 6th grade students at a primary school in Ankara, it was found that girls were more physically inactive both at school and during their leisure time.

Studies showed that the perception of self-efficacy among children associated with involvement in physical activities (Pivarnik and Pfeiffer, 2002; Robbins et al., 2004; Srof and Velsor-Friedrich, 2006). Self-efficacy with respect to physical activity stands for a child's belief concerning his or her own skills for successfully completing the task associated with physical activity (Colella et al., 2008; Ray, 2010). Self-efficacy has been shown as one of the strongest indicator of involvement in exercising habits in some studies (Strauss et al., 2001; Robbins et al., 2004; Srof and Velsor-Friedrich, 2006). Increasing physical activity self-efficacy is considered to be an important part of health improvement efforts against physical inactivity (Bauman et al., 2006). In the other words, improved self-efficacy leads to higher levels of physical activity at some later point in time (Marcus and Forsyth, 2003). Additionally, some studies supported the relationships between exercise self-efficacy and various components of wellness. For example, Gieck and Olsen (2007) found self-efficacy was related to physical, intellectual, spiritual, emotional, and social wellness in a holistic wellness walking program. Similarly, Sidman and colleagues (2009) found that total exercise self-efficacy significantly predicted perceived wellness and the wellness subscales of physical, spiritual, intellectual, psychological, and emotional dimensions. Likewise, the association of exercise self-efficacy and the physical component of wellness had been shown in other researches (Wallace and Buckworth, 2001; Hu et al.2006).

Studies are needed to increase the level of physical activity of children in Turkey. In the Turkish research literature we reached limited study about effectiveness of behavioral interventions on physical activity and these studies have not examined the relationship between self-efficacy and physical activity in children (Kilicarslan-Toruner and Savaser, 2010; Ergun et al, 2012). Furthermore, a validated Turkish version of Physical activity self-efficacy scale had not been available. Physical activity self-efficacy scale (PASES) developed by Edmundson et al., is a concise and practical scale. It has been used as a sub-scale in many studies using the Health Behavior Questionnaire (HBQ) of the Coordinated Approach to Child Health (CATCH) program (Luepker et al., 1996; Robinson Thomas, 2004; Matthews, 2011). Turkish version of PASES can

be useful for future cross-cultural studies and school nursing services. The purpose of this study is to investigate the psychometric properties, including internal reliability, the item-total correlation, and the test- retest reliability, of PASES in a Turkish children sample.

2. Material And Methods

2.1. Participants
This methodological study was conducted with the participation of 467 children aged 10-15 years who were 4th- 8th grade students in two state schools in Antalya.

2.2. Instrument: Physical Activity Self-Efficacy Scale (PASES)
The PASES was developed by Edmundson et al. in 1996 as a sub-scale of the Health Behavior Questionnaire form as part of the CATCH program. Consisting of five items, the scale is arranged as a three-point Likert scale with a single factor structure. The items are scored -1(I am not sure), 0 (I am somewhat sure), +1 (I am very sure) and the total score ranges between -5 and +5. Higher scores in the scale indicate a higher self-efficacy. In the original PASES study, the Cronbach's alpha was found to be α: 0.67 for third grade students and α: 0.69 for fifth grade students (Edmundson et al., 1996).

2.3. Procedure
The study was approved by the ethical committee of Marmara University. A written consent was received from the Antalya Provincial Directorate for National Education to conduct the study.

2.3.1. Translation procedures
After obtaining permission from CATCH coordinator, The PASES was translated using back-translation techniques. The PASES was first translated from English to Turkish separately by four bilingual linguistic. Another expert and the researchers reviewed the Turkish translations together with the original English form for inconsistencies and meaning in context and culture. They suggested minor revisions in some areas. A Turkish version of PASES was eventually created. Subsequently, it was translated back from Turkish to English by a bilingual language expert. The back-translated and original forms of PASES were compared and found to be highly similar in meaning.

2.3.2. Validity
Validity is defined as the extent to which a measurement tool can correctly measure the property it is aimed to measure without confusing it with any other properties (Ercan and Kan, 2004). A scale is tested for content validity via expert opinion in order to generate an adaptation with clearer items (Aksayan and Gozum, 2002).

The content validity of the PASES was assessed by an expert panel of 11 academicians including seven academics in community health nursing, one in children's health nursing, two from the school of physical education and sports and one from the faculty of education. The academics scored the Turkish translation of the items in the PASES on a four-point Likert scale ranging from

1 to 4 on the basis of suitability for Turkish culture, relevance with physical activity self-efficacy, clarity, and simplicity (Polit and Beck, 2008). Comprehensibility of each item defined as 1 point: not available, 2 point: little convenient (revision of the statement or substance is required), 3 point: quite convenient (only a small change is required), 4 point: very convenient. In accordance with the opinions of the experts was assessed the content validity index (CVI) of the Turkish version of the PASES. The CVI shows the percentage of the total items rated by the experts with either 3 or 4. A content validity index score of 0.80 or higher is generally considered to indicate good content validity (Polit and Beck, 2008).

2.3.3. Pilot test

After determining the language and content validity to test whether the scale was properly understood and answered by the participants, a pilot study was administered with 20 students that satisfy sample characteristics. These children were not included in the study. The children were asked to evaluate the scale in terms of intelligibility, readability, and lay out of substance. However, no recommendations were received from children. Therefore, the final version of the scale used in the study.

2.3.4. Data collection

Data were collected using a demographic form and the PASES in May 2011. The retest was performed with 69 students (Grades 4 to 8) after two weeks. On the day the questionnaires were administered, students were asked to complete PASES at school during regular classes. The first author was present at the school in order to provide that the questionnaires were answered independently and confidentially and to help when necessary. The scale took approximately 5 minutes to complete.

2.3.5. Reliability

Reliability is one of the two fundamental criteria for evaluating the consistency and correctness of a qualitative tool, and it is an indicator of the persistence of the results obtained from different measurements under the same conditions (Ercan and Kan, 2004; Polit and Back, 2008). The error rate generally goes down in measurements as a scale becomes more reliable (Polit and Back, 2008).

Internal consistency is the type of reliability that indicates that all the units of the measurement tool are capable of measuring the relevant variables (Aksayan et al., 2002). All scales are supposed to have a reliability coefficient in the positive side and closer to +1 (Gozum and Aksayan, 2003). Although .70 is widely considered a criterion for good internal consistency, DeVellis (2003) regarded an alpha of below .60 as unacceptable.

The split-half reliability method is one of the oldest methods used to determine internal consistency. In this approach, test substances are divided into two groups and scored independently. These two halves of the test scores used to calculate a correlation coefficient and this calculated correlation coefficient estimates the internal consistency of the scale. In this study, the items of the scale were divided into two groups, the items 1-3 were designated as "Group 1", and the items 4-5 were designated as "Group 2".

Item analysis is conducted in order to investigate the contribution of each item in a scale (Gozum and Aksayan, 2003). The indicators of distinction suggest that an item is acceptable, if its item-total correlation coefficients are between 0.21 and 0.40 or above (Sencan, 2005; Gozum and Aksayan, 2003). In this study, the item-total correlation values were evaluated and compared the original PASES.

The test-retest reliability is assessed by implementation a measurement tool twice with a certain amount of time between the two instances that is long enough to prevent the participants from substantially remembering the scale but short enough not to cause significant changes in the property to be measured (Ercan and Kan, 2004). The correlation between the findings obtained in the two implementations shows the extent to which a measurement tool generates consistent results across different implementations and does not vary across time (Gozum and Aksayan, 2003). Correlation coefficient takes a value between -1.00 and +1.00. The more reliable a scale is, the closer the correlation coefficient is to +1.00 (Tavsancil, 2010).

In order to assess the scale's stability over time, test-retest reliability of the scale was carried out after 2 weeks with 69 students.

2.4. Data Analysis

The data were analyzed using the Statistical Package for Social Sciences Version 18 for Windows. Descriptive statistics were used to analyze the characteristics of the sample. The validity of the PASES was assessed in terms of content validity, and its reliability was evaluated in terms of internal consistency reliability and test-retest reliability. Content validity was based on an experts' panel and assessed by using a content validity index. The Cronbach's alpha and Spearman-Brown Coefficient were calculated for the internal consistency analysis of the Turkish version of the PASES. The test-retest reliability and item analysis of the PASES were assessed using Spearman's correlation. Significance was set at $p < 0.05$ and the confidence interval was taken to be at the 95% level.

3. Results

The mean age of the children was 12.36 ± 1.285 of all participants, 51.6% were males, and more than half (63.2%) were students at 6 to 8 grade (Table 1).

The mean total PASES score was found to be 3.45 ± 1.69, and it was identified that students of lower grades and males had relatively higher physical activity self-efficacy mean scores (Table 2).

3.1. Validity

3.1.1. Content validity

The content validity index (CVI) for the scores assigned by the academicians to the items in the Turkish version of the PASES were respectively as follows: suitability for Turkish Culture, 3.47 ± 0.58 (CVI: 0.87); relevance with physical activity self-efficacy 3.51 ± 0.49 (CVI: 0.88); clarity, 3.35

± 0.52 (CVI: 0.84); and simplicity, 3.36±0.58 (CVI: 0.84). Items of PASES had a higher CVI score than 0.80 in the four categories. This result showed that the Turkish version of the scale was culturally implementable.

3.1.2. Construct validity

The KMO was 0.71 and Bartlett's test of sphericity was significant (χ^2 = 273.38, df =10, p < 0.001). Consequently, the coefficients were not all zero, so that the second acceptance of factor analysis was satisfied. As a result, both acceptances for the conduct of factor analysis was satisfied and we could proceed to it. While conducting the factor analysis, we decided to use one factor because only one factor had an eigenvalue of 1.00 or higher (2.075), which explained 41.5% of the total variance. Factor eigenvalues of the PASES items started from 0.56 and demonstrated moderate to strong loading (Table 3).

Factor Analysis was performed in an attempt to establish construct validity and to identify any underlying associations between items in the scale, and the PASES confirmed the presence of one factor and demonstrated moderate to strong loading.

3.2.   Reliability

3.2.1. Internal consistency reliability

The Cronbach's alpha was identified to be 0.65, and it was higher in males (0.66) than females (0.63). Yet, it was found that the Cronbach's alpha was higher among the students of higher grades. The split-half reliability coefficient of the PASES was calculated to be 0.67. These findings suggest that the scale had an acceptable reliability (DeVellis, 2003).

The reliability coefficient (Cronbach's alpha) and the split-half reliability for the Turkish version of the scale was found to be >0.60. Although 0.70 is widely considered a criterion for good internal consistency, DeVellis (2001) regarded an alpha of below 0.60 as unacceptable. The findings of this study suggest an acceptable reliability (DeVellis, 2003; Polit and Back, 2008; Tavsancil, 2010). Similarly, it was reported that the Cronbach's alphas for the English version of the scale were 0.67 and 0.69 for the third grade and fifth grade students respectively (Edmundson et al., 1996). Other studies found that the reliability coefficient varied between 0.69 and 0.71 (Luepker et al., 1996; Robinson and Thomas 2004) similar to the original study as well as other studies on the scale.

3.2.2. Item analysis

Item-total correlations of the PASES varied from 0.50 to 0.70 and it was found that item 1 had the highest correlation, while item 3 had the lowest (Table 3). According to these findings, the items in this scale were reliable.

In this study, the item-total correlation values were greater than 0.50 and no items were excluded from the original PASES. Based on these results, the items of this scale are reliable and behave the same way across different implementations.

3.2.3. Test-retest reliability

The Pearson Correlation between the first and second implementations was calculated to be r = 0.56 and assessed as moderate reliability.

The test-retest reliability of the PASES was found to be moderate (r=0.56). It is quite difficult to obtain the same results in the scales measuring abstract qualities like self-efficacy, especially if the participants are children. Therefore, it is understandable that the scale had a moderate reliability compared to the scales used for measuring physical qualities (Ercan and Kan, 2004).

4. Conclusions

The psychometric properties of the PASES support its use as a research instrument in measuring the level of physical activity self-efficacy in Turkish children. It shows adequate internal consistency reliability and strong evidence for content validity and construct validity. Based on these results, the PASES may be used with confidence as an objective assessment tool in measuring the physical activity self-efficacy levels of Turkish children.

REFERENCES
Aksayan, S., Bahar, Z., Bayik, A., Emiroglu O.N., Erefe I., Gorak G., Karatas N., Kocaman G., Kubilay G., Sevig U. (2002). *Hemsirelikte Arastirma: Ilke, Surec ve Yontemler [Nursing Research: Principles, Process and Methods]*. Erefe I. (Ed.). Istanbul: Adak Ofset.
American Health Assosiation (AHA). Physical Activity and Children. (Retrieved on: 31.07.2012). http://www.heart.org/HEARTORG/GettingHealthy/Physical-Activity-and-Children_UCM_304053_Article.jsp
American Heart Association (2010). Understanding childhood obesity. (Retrieved on: 09.10.2012)http://www.heart.org/idc/groups/heartpublic/@wcm/@fc/documents/downloadable/ucm_304175.pdf
Arslan, F., Unal, A. S., Guler H., Kardas, K. (2006). Okul cagi cocuklarinin televizyon izleme aliskanliklarinin incelenmesi [Examination of television viewing habits of school age children]. *TSK Koruyucu Hekimlik Bulteni [TAF Prev Med Bull]*, 5, 391-401.
Bauman, A., Phongsavan, P., Schoeppe, S., Owen, N. (2006). Physical activity measurement- a primer for health promotion. *Promotion Education*, 13, 92.
Bek, N. (2008). *Fiziksel Aktivite ve Sagligimiz [Physical Activity and Health]*. Saglik Bakanligi Yayin No: 730 [Ministry of Health Publication Number: 730], Ankara: Klasmat Matbaacilik [Klasmat Publisher], 10-13.
Centers for Disease Control and Prevention (CDC). (1997). Guidelines for school and community programs to promote lifelong physical activity among young people. *MMWR*, 46 (RR-6): 1-36.
Colella, D., Morano, M., Bortoli, L., Robazza, C. (2008). A physical self-efficacy scale for children. *Social Behavior and Personality: An International Journal,* 36, 841-848.
DeVellis, R. F. (2003). Scale development: Theory and applications. 2[nd]ed, London, pg: 27-28, 95.

Edmundson, E., Parcel, G. S., Perry C. L., Feldman, H. A., Smyth, M., Johnson, C. C., Layman, A., Bachman, K., Perkins, T., Smith, K., Stone, E. (1996). The effects of the child and adolescent trial for cardiovascular health intervention on psychosocial determinants of cardiovascular disease risk behavior among third-grade students. *American Journal of Health Promotion,* 10*,* 217-225.

Ercan, I. Kan, I. (2004). Olceklerde guvenirlik ve gecerlik [Reliability and validity in the scales].*Uludag Universitesi Tip Fakultesi Dergisi [Journal of Uludag University School of Medicine],* 30, 211-216.

Ergun, A., Gur, K., Erol, S., Kadioglu, H. (2012) Okul Temelli Fiziksel Etkinlik Programinin Cocuklarin Fiziksel Etkinlik Bilgi ve Davranislarina Etkisi [Effects of the School-Based Physical Activity Program on Children's Physical Activity Knowledge and Behaviors]. Hemsirelikte Arastirma Gelistirme Dergisi *[Nursing Research and Development Association],* 2, 17-28.

Floriani, V., Kennedy, C. (2008). Promotion of physical activity in children. *Current Opinion in Pediatrics*, 20, 90–95.

Gieck, D., Olsen, S. (2007). Holistic wellness as a means to developing a lifestyle approach to health behavior among college students. *J Am Coll Health,* 56, 29-36.

Gozum, S., Aksayan, S. (2003). Kulturlerarasi olcek uyarlamasi icin rehber II: psikometrik ozellikler ve kulturlerarasi karsilastirma [A guide for transcultural adaptation of the scale II: psychometric characteristics and cross-cultural comparison].*Hemsirelikte Arastirma Gelistirme Dergisi [Nursing Research and Development Association],* 1, 3-14.

Hu, L., Motl, R.W., McAuley, E., et al. (2007). Effects of self-efficacy on physical activity enjoyment in college-aged women. *Int J Behav Med*, 14, 92- 96.

Kılıçarslan-Törüner, E., Savaşer S. (2010). A controlled evaluation of school-based obesity prevention in Turkish school children. The Journal of School Nursing, 26(6), 473-482.

Krakow, E. (2011). Setting the Stage for Lifelong Healthy Habits in Early Childhood: Developmental stages of physical activity. Moragues N., Tremblay R.E. Giard C.G. (Ed.). Centre of Excellence for Early Childhood Development Parenting Series - Physical Activity. (Retrieved on: 09.10.2012) http://www.excellenceearlychildhood.ca/ documents/parenting_ 2011-04.pdf.

Kudas, S., Ulkar, B., Erdogan, A., Circi, E. (2005). Ankara ili 11-12 yas grubu cocuklarin fiziksel aktivite ve bazi beslenme aliskanliklari [Physical activity and some dietary habits of children in the age group 11-12 in Ankara]. *Hacettepe Spor Bilimleri Dergisi [*Hacettepe Journal of Sport Sciences*]*, 16, 19-29.

Luepker, R. V., Perry C. L., McKinlay S. M., et al. (1996). Outcomes of a field trial to improve children's dietary patterns and physical activity. : the child and adolescent trial for cardiovascular health (CATCH). *The Journal of the American Medical Association,* 13, 768-776.

Marcus, B.H., Forsyth, L.H. (2003). *Motivating People to Be Physically Active.* Physical Activity Intervention Series. United States of America, USA: Human Kinetics.

Matthews, K.L. (2011). The Impact of the Coordinated Approach to Child Health (CATCH) Intervention on Dietary Behavior in Hispanic Elementary School Children. Walden University College of Education, Degree of Doctor of Education Teacher Leadership. United States.

Pivarnik, J.M., Pfeiffer, K.A. (2002). Position Paper: The importance of physical activity for children and youth. *Michigan Governor's Council on Physical Fitness, Health and Sports,* July, 1-15.

Polit, D.F., Back, C.T. (2008). *Nursing Research: Generating and Assessing Evidence for Nursing Practice.* 8th ed. Philadelphia, PA: Lippincots Williams Wilkins, 449-474.

Ray, T.D. (2010). Relationships among self-efficacy, physical activity and BMI in children with congenital heart disease. University of Arkansas for Medical Sciences, The degree of Doctor of Philosophy. United States.

Robbins, L.B., Pender, N. J. Ronis, D. L., Kazanis, A. S., Pis, M. S. (2004). Physical activity, self-efficacy, and perceived exertion among adolescents. *Research in Nursing Health,* 27, 435–446.

Robinson C.H., Thomas S.P. (2004). The Interaction Model of Client Health Behavior as a Conceptual Guide in the Explanation of Children's Health Behaviors. *Public Health Nursing,* 21, 73–84.

Sencan, H. (2005). *Sosyal ve Davranissal Olcumlerde Guvenilirlik ve Gecerlilik* [*Reliability and Validity in Social and Behavioral Measurements*]. 1.Baski [1st Ed], Ankara: Seckin Yayinevi [Seckin Publisher].

Sidman, C.L., D'Abundo, M.L., Hritz, N. (2009). Exercise self-efficacy and wellness among college students in a basic course. *International Electronic Journal of Health Education,* 12,162-174.

Srof, B. J., Velsor-Friedrich, B. (2006). Health promotion in adolescents: a review of Pender's Health Promotion Model. *Nursing Science Quarterly*, 19, 366-373.

Strauss, R.S., Rodzilsky, D., Burack, G., Colin, M. (2001). Psychosocial correlates of physical activity in healthy children. *Archives of Pediatrics Adolescent Medicine*, 155, 897-902.

Tavsancil, E. (2010). *Tutumlarin olculmesi ve SPSS ile very analizi* [*Measurement of Attitudes and data analysis with SPSS*] (4. Baski) [4th Ed]. Ankara: Nobel Yayin Dagitim [Nobel Publisher], 16-61.

Ucar, B., Kilic, Z., Colak, O., Oner, S. (2000). Coronary risk factors in Turkish school children: Randomized randomized cross-sectional study. *Pediatrics International,* 42, 259–267.

Vaizoglu, SA., Akca, O., Akdag, A., Akpinar, A., Omar, A.H., Coskun, D., Guler, C. (2004). Genc eriskinlerde fiziksel aktivite duzeyinin belirlenmesi [Determination of physical activity among young adults]. *TSK Koruyucu Hekimlik Bulteni [TAF Prev Med Bull]*, 3, 63-71.

Wallace, L., Buckworth, J. (2001). Application of the transtheoretical model to exercise behavior among nontraditional college students. *Am J Health Educ*, 32, 39-47.

World Health Organization (WHO). (2003). Information Sheet on Physical Activity. (Retrieved on: 01.06.2012) http://www.who.int/dietphysicalactivity/media/en/gsfs_pa.pdf

Table 1. Demographical Characteristics of The Children (n=467)

Variables	Frequency	%
Age (*Mean = 12.36 ± 1.285*)		
10	35	7.5
11	91	19.5
12	130	27.8
13	114	24.4
14	78	16.7
15	19	4.1
Gender		
Female	226	48.4
Male	241	51.6
Grade		
4	50	10.7
5	122	26.1
6	106	22.7
7	131	28.1
8	58	12.4

Table 2. Descriptive Statistics and Cronbach's Alpha Coefficient of The PASES (n = 467)

Physical activity self- efficacy	Mean (SD)	Cronbach's alpha
Gender		
Female	3.21 (1.768)	0.63
Male	3.68 (1.603)	0.66
Grade		
4	4.04 (1.355)	0.60
5	3.95 (1.425)	0.63
6	3.25 (1.639)	0.61
7	3.25 (1.790)	0.64
8	2.62 (1.945)	0.64
Total	*3.45 (1.699)*	*0.65*

Table 3. Item Analysis and Factor Eigenvalues of The PASES (n = 467)

Items	Mean (SD)	Item-Total correlation r (p)	Factor Eigenvalues
1. How sure are you that you can prefer to jog between lessons?	0.59 (0.577)	0.70 (0.000)	**2.075**
2. How sure are you that you can physically be active 3-5 times a week?	0.76 (0.488)	0.54 (0.000)	**0.895**
3. How sure are you that you can exercise most of the time during your physical exercise lesson and sustain being active?	0.77 (0.494)	0.50 (0.000)	**0.821**
4. How sure are you that you can improve your physical competence by jogging or riding a bike 3-5 times a week?	0.67 (0.529)	0.61 (0.000)	**0.646**
5. How sure are you that you can maintain your pace without stopping for 15-20 minutes when you are physically active?	0.66 (0.545)	0.61 (0.000)	**0.563**