

Original Article

Psychometric Properties of Physical Activity and Leisure Motivation Scale in Farsi: an International Collaborative Project on Motivation for Physical Activity and Leisure

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Abstract

Background: Given the importance of regular physical activity, it is crucial to evaluate the *factors favoring participation in physical activity*. We aimed to report the psychometric analysis of the Farsi version of the Physical Activity and Leisure Motivation Scale (PALMS).

Methods: The Farsi version of PALMS was completed by 406 healthy adult individuals to test its factor structure and concurrent validity and reliability.

Results: Conducting the exploratory factor analysis revealed nine factors that accounted for 64.6% of the variances. The PALMS reliability was supported with a high internal consistency of 0.91 and a high test-retest reliability of 0.97 (95% CI: 0.97–0.98). The association between the PALMS and its previous version Recreational Exercise Motivation Measure scores was strongly significant ($r = 0.86, P < 0.001$).

Conclusion: We have shown that the Farsi version of the PALMS appears to be a valuable instrument to measure motivation for physical activity and leisure.

Keywords: Adherence, exercise, Farsi, motivation, reliability, validity

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Introduction

There is lack of a validated scale to accurately assess the type of motivation for physical activity in Farsi language and it led us to adopt the Physical Activity and Leisure Motivation Scale (PALMS) and evaluate its psychometric proprieties in an Iranian sample. There can be no doubt that regular physical activity is a substantial factor for physical and psychological well-being.¹ Participation in regular physical activity contributes to prevention of many diseases and disorders such as coronary heart diseases, type 2 diabetes, hypertension, obesity and cancers,² depression, stress, anger while improving feelings of coherence and social interaction.^{3,4} Despite these advantages, about 80% of individuals in Iran do not engage in physical activity programs.^{6,7} Most of the people are not able to continue regular physical activity programs, and about half of those starting a physical activity program abandon it after several months. To examine the determinants of participation in physical activity, research has shown that motivation is a crucial factor for engaging in physical

activity programs.⁸ Intrinsic motivations for participation in physical activity (e.g., competence or enjoyment) are associated with a more physically active lifestyle compared with extrinsic motivations (e.g., rewards or competition).⁹ Therefore, in order to assess different aspects of physical activity motives, a few valid and reliable instruments have been recently developed such as the Exercise Motivation Inventory-2,¹⁰ as well as the Exercise Motivation Scale¹¹ and the Perception of Success Questionnaire for Exercise.¹² We selected the PALMS from a variety of available scales to translate and validate it in Farsi language, mainly because it targets different levels of physical activity, ranging from professional to leisure activities and it is considered a step forward in theory-based development of measures of physical activity motives.

Rogers and Morris¹³ developed a reliable measure of motives for physical activity in both exercise and sport contexts, entitled Recreational Exercise Motivation Measure (REMM). The REMM includes both extrinsic and intrinsic motives.^{8,14} However, the REMM was too long (73 items) which may cause boredom or fatigue in participants. Therefore, the same authors developed a short form of the REMM called PALMS to reduce shortcomings within the REMM. As the PALMS items emerged from the strongest items of the REMM, reliability and validity of the PALMS were expectable.¹⁵

However, for further psychometric validation of the PALMS, additional research was needed to test the scale in different populations. Actually, the PALMS was examined in an Australian population and showed good internal consistency and high criterion validity.¹⁶ The PALMS was further tested in Hebrew language and the results demonstrated a good internal consistency for each subscale.¹⁷ More recently, the PALMS was examined in

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Malaysia and consequently a good internal consistency, stability, and fit indices were shown.¹⁸

Since the linguistic features may influence the way the questionnaire is presented and interpreted in different cultures, over the last two decades, there has been an increasing interest to examine the psychometric properties of established English questionnaires in different cultures and languages. In the present case, it is important to translate and validate the PALMS in new languages to expand the robustness of the PALMS in various cultures. Thus, the aim of the current study is to examine the PALMS in a different culture (i.e., Farsi). We further sought to examine the reliability, validity and factorial structure of the Farsi version of the PALMS in an unstudied sample of Iranian population.

Materials and Methods

Participants

In the current study, data was gathered from 406 healthy individuals (190 male) whose age ranged between 15 and 87 years with a mean of 26.1 years (SD = 9.4). A total of 532 participants were asked to complete the questionnaires but 409 returned their questionnaires. Thus, the response rate was about 76%. The participants were involved in different types of physical activity extending from recreational exercise to professional sport and were recruited from gymnasiums, clubs, and leisure centers in Tehran and Isfahan, two large cities of Iran. The sampling method was purposeful but not random; we collected data from these two cities because of our easy access to their sport centers.

Measures

Demographic information

In order to collect descriptive information, the participants were asked to complete a questionnaire that consisted of demographic information such as gender, occupation, age, as well as exercise information including type of sport, type of physical activity, number of sessions per week, duration of training, intensity, and the level of participation in physical activity.

Physical Activity and Leisure Motivation Scale

The PALMS is a short form measurement that was developed from the validated version of the REMM. The PALMS also measures the motivation of physically active individuals on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). A higher score of the PALMS scale indicates a higher motivation to participate in physical activity.¹⁵ The REMM has 73 items that are answered by participants on a Likert scale with points ranging from 1 (strongly disagree) to 5 (strongly agree).¹³

Shortened Marlowe-Crowne Social Desirability Scale (SMCSDS)

In order to assess social desirability bias in responses by participants, a 13-item short form of the SMCSDS was applied. Social desirability bias suggests that respondents tend to show socially favorable and acceptable image of themselves to others when answering self-evaluative questions. We obtained correlation between the SMCSDS and the PALMS to reveal if the answers were affected by social desirability bias.¹⁹

Translation and Cross-cultural Adaptation

Forward translation

The Farsi version of the PALMS was translated from the

original language (English) to Farsi by two different independent bilingual translators whose first language was Farsi. One of the translators was a psychologist experienced in translating psychological questionnaires; she was aware of the purpose and the concepts applied in the questionnaire. The other translator had no psychological background and was uninformed about the purpose of the study. Both translators discussed differences in translation and resolved inconsistencies. Ultimately, they made a final version of the translation upon which both agreed.

Back translation

The back translation of the Farsi version to English was made by one bilingual translator whose mother tongue was English. She was unaware of the original version and uninformed of the purpose of the questionnaire. The translators were experienced in the field of psychology.

Expert committee

The multidisciplinary expert committee evaluated and reviewed the final Farsi translation and the back translation. The committee consists of the translators, a research assistant, a psychologist and a statistician. The expert committee reviewed and evaluated all the translations and compared them to the original English version and concluded that the translations were idiomatically, semantically, and culturally equivalent. They resolved discrepancies and reached consensus to form the pre-final version of the Farsi version of PALMS.

Pretesting

After finalizing the last draft, it was pre-tested in a sample of 30 recreational exercisers in order to assess the clarity of the statements and the questionnaire. Based on the feedback we received, changes were made to the semantics of some statements in order to ensure understandability of the questionnaire for the Iranian population.

Procedure

The Institutional Review Board of the Tehran University of Medical Sciences approved the ethical aspect of this research. The participants received questionnaires during their practice sessions before or after the training period. We followed the standard consent procedures if the questionnaires were distributed in places where permission was required. The participants were given liberty to participate our study and were asked to complete an informed consent form. They received a pack of three questionnaires include: the SMCSDS, the REMM, the PALMS and a demographic information form. The participants were briefed that there is no wrong or right answer and they should respond based on their experience and we reassured them that their personal information will remain secure.

Statistical analysis

Factor structure

Data was analyzed using IBM SPSS Statistics software version 17. We conducted EFA with varimax rotation and maximum likelihood (ML) methods to obtain the factor structure of the PALMS. EFA was conducted to estimate and reduce factors of the PALMS questionnaire and rotate factors to find an explainable direction. In order to determine the number of factors rotate, the eigenvalues greater than one, the scree plot and the percent

of variance accounted for by each component were considered. A factor loading of 0.3 or greater was considered significant in the context of EFA.

Validity

Regarding criterion validity, we examined correlations between each subscale of the PALMS and the REMM subscales using Spearman's rank correlation coefficient (Spearman, 1904). Furthermore, to assess the social desirability bias in participants, we used Pearson's Product-Moment correlation between the PALMS subscales and the SMCSDS (Pearson, 1920).

Reliability

Internal consistency was assessed using the Cronbach's coefficient alpha (Cronbach, 1951). Additionally, "Cronbach's alpha if item deleted" was reported. In the "item total correlation", high correlation between each item and total score for the subscale represents that the item is powerful. The questionnaire was re-administered to 90 participants after an interval of four weeks and the test-retest reliability was evaluated using intraclass correlation coefficient (Morrow & Jackson, 1993).

Results

Factor structure

The demographic characteristics of the participants of the study are shown in the Table 1. The descriptive statistics of the PALMS's subscales and total score are shown in Table 2. In exploratory factor analysis on the observed data, we conducted principal component analysis with varimax rotation to obtain factors. We took an eigenvalue greater than 1.0 to retain factors if all the items had a value load of 3.0 or greater. The loading of the items from rotated matrix ranged between 0.392 and 0.882. EFA revealed nine-factor solution labeled: competition/ego, appearance, others' expectations, affiliation, psychological condition, enjoyment, mastery, financial gain and to be with others. Based on the study by Morris & Rogers (2004), we hypothesized that physical condition and appearance are different factors but both were merged into one factor labeled appearance, except item 33 that was loaded on enjoyment factor. We expected that items number 1 ("to earn a living") and number 7 ("Because I get paid to do it") would load on others expectation factor but they emerged as an independent factor that we labeled "financial gain". We also expected that the

Table 1. Demographic characteristics of the study population ($n = 406$).

Characteristics	Number	Percentage
Gender		
Male	192	47.3
Female	214	52.7
Age		
15–20	89	21.9
21–24	147	36.2
25–29	92	22.6
30–87	78	19.2
Education		
Diploma & Bachelor	119	29.3
Graduate	242	59.6
PhD	26	6.4
Missing	19	4.7
Level of physical activity		
International	15	3.7
National	75	18.5
State	107	26.4
Club	35	8.6
Recreational	158	38.9
Missing	16	3.9
Form of physical activity		
Sport	104	25.6
Planned exercise activity	113	27.8
Leisure activity	122	30.0
Other	47	11.5
Missing	20	4.9

Table 2. The descriptive statistics of the subscales and total score of Farsi version of the PALMS ($n = 406$).

Subscales	Mean(SD)	Range (min-max)
Appearance	36.5(6.1)	9–45
Mastery	19.5(3.5)	5–25
Affiliation	19.3(3.5)	5–25
Psychological condition	15.2(3.1)	4–20
Enjoyment	20.7(3.1)	5–25
Competition/ego	16.4(4.1)	5–25
Other's expectation	8.5(2.8)	3–15
To be with others	7.1(1.7)	2–10
Financial gain	4.9(2.4)	2–10
Total PALMS	148.9(19.6)	56–196

Table 3. Summary of Exploratory Factor Analysis of the Farsi version of the PALMS using varimax rotation ($n = 406$)

Label	Items of PALMS	Components	Factor loading									C*	
			1	2	3	4	5	6	7	8	9		
Appearance	Item 40	Maintain trim, toned body	0.838										0.77
	Item 11	Define muscle, look better	0.798										0.71
	Item 23	Improve body shape	0.797										0.75
	Item 12	Be physically fit	0.792										0.72
	Item 32	Improve appearance	0.764										0.64
	Item 36	Lose weight, look better	0.585										0.53
	Item 15	Maintain physical health	0.518										0.60
	Item 28	Because it keeps me healthy	0.419										0.51
	Item 10	Because it helps maintain a healthy body	0.392										0.57
Mastery	Item 16	Improve existing skills		0.706									0.68
	Item 24	Obtain new skills/activities		0.650									0.57
	Item 19	Do my personal best		0.618									0.58
	Item 31	Keep current skill level		0.611									0.60
	Item 5	Get better at an activity		0.444									0.46
Enjoyment	Item 33	Improve cardiovascular fitness			0.882								0.88
	Item 3	Because it is interesting			0.882								0.88
	Item 2	Because it helps me relax			0.624								0.56
	Item 34	I enjoy exercising			0.462								0.62
	Item 13	Because it makes me happy			0.409								0.59
Psychological condition	Item 22	Because it acts as a stress release				0.743							0.73
	Item 9	Better cope with stress				0.724							0.65
	Item 14	Get away from pressures				0.623							0.64
	Item 35	Take mind off other things				0.543							0.57
	Item 29	Compete with others around me					0.730						0.58
	Item 27	Work harder than others					0.655						0.59
	Item 17	Be best in the group					0.613						0.65
	Item 39	Be fitter than others					0.558						0.65
	Item 6	Perform better than others					0.473						0.60
Affiliation	Item 38	Be with friends							0.700				0.64
	Item 25	Because it is fun							0.634				0.59
	Item 30	Talk with friends exercising							0.574				0.58
	Item 4	Enjoy spending time with others doing exercise							0.536				0.64
	Item 37	Because I have a good time							0.456				0.67
Others' expectation	Item 26	Because it was prescribed by doctor, physio								0.800			0.70
	Item 18	Manage medical condition								0.689			0.64
	Item 21	People tell me I need to								0.678			0.56
Financial gain	Item 7	Because I get paid to do it									0.823		0.77
	Item 1	Earn a living									0.764		0.66
To be with others	Item 8	Do activity with others										0.684	0.66
	Item 20	Do something in common with friends										0.581	0.70
% explained variance			12.64	8.83	8.56	7.34	6.22	6.19	5.45	5.45	3.97		
Eigenvalue			5.05	3.53	3.42	2.93	2.48	2.47	2.18	2.18	1.58		
Number of test measures			9	5	5	4	5	5	3	2	2		
C = Communalities													

Table 4. Internal consistency and Pearson's Product-moment correlations for the PALMS.

Subscales	PALMS Internal consistency (α)	PALMS & MCSDS Pearson's Product-moment correlations (r)
Mastery	0.79*	0.14**
Appearance	0.88*	0.02
Affiliation	0.77*	-0.005
Psychological condition	0.76*	0.004
Enjoyment	0.86*	-0.01
Competition ego	0.75*	0.03
Other expectation	0.67*	0.07
Financial gain	0.80*	0.12*
To be with others	0.62*	-0.001
Total PALMS	0.91*	0.06

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed). α = Cronbach's alpha.

Table 5. Test-retest reliability of the PALMS (Farsi version).

Subscales	PALMS Test-retest correlation	95%CI
Mastery	0.93**	0.91–0.95
Appearance	0.94**	0.91–0.96
Affiliation	0.93**	0.89–0.95
Psychological condition	0.94**	0.92–0.96
Enjoyment	0.91**	0.85–0.94
Competition/ ego	0.94**	0.92–0.96
Other's expectations	0.94**	0.92–0.96
Financial gain	0.92**	0.88–0.94
To be with others	0.84**	0.77–0.88
Total PALMS	0.97**	0.97–0.98

**Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

item 8 (“Do activity with others”) and the item 20 (“Do something in common with friends”) might load on “affiliation” but they loaded on a new factor which we labeled as “to be with others”. These nine factors accounted for 64.6% of variances. Factor loading is shown in Table 3.

Reliability

We used Cronbach's coefficient alpha to evaluate internal consistency; the results are shown in Table 4. The internal consistency for each subscale varied between 0.62 and 0.88, and the homogeneity of the total PALMS score was excellent ($\alpha = 0.91$). Item deleted alpha coefficients for “mastery” subscale varied from 0.73 to 0.78; the correlation coefficients between items of mastery and total subscale ranged from 0.50 to 0.64. For the “affiliation” subscale, Item deleted alpha coefficients varied from 0.72 to 0.75, and correlations between the items of “affiliation” subscale and the total subscale ranged from 0.51 to 0.57. Item deleted alpha coefficients for “psychological condition” subscale varied from 0.63 to 0.78. The correlation coefficients between items of psychological condition subscale, and the total subscale ranged from 0.43 to 0.69. For “appearance” subscale, item deleted alpha coefficients ranged from 0.86 to 0.89 and the correlation coefficients with the total subscale for appearance subscale ranged from 0.49 to 0.74. Item deleted alpha coefficients for “other expectation” subscale ranged from 0.51 to 0.66, and the correlation coefficients between “other expectation” subscale and the total subscale varied from 0.41 to 0.53. For “enjoyment”

subscale, item deleted alpha coefficients ranged from 0.79 to 0.85, and the correlation coefficients between enjoyment subscale and total subscale varied from 0.59 to 0.80, whereas the overall alpha coefficient for enjoyment subscale was 0.86. Item deleted alpha coefficients for competition/ego subscale ranged between 0.67 and 0.72, the correlation coefficients among items of competition/ego subscale and the total subscale varied between 0.47 and 0.59. For new emerged factor, “to be with others”, the correlation with the total subscale was 0.45. Finally, for the “financial gain” subscale, the correlation between items and total subscale was 0.67.

In addition, to assess the test-retest reliability of the PALMS; intraclass correlation coefficient showed that there was no significant difference after four weeks between the scores of the PALMS subscales. The intraclass correlation coefficient results are shown in table 5.

Validity

In order to assess the criterion validity of the PALMS, the participants were asked to complete the REMM questionnaire proven to have high validity and reliability (Rogers & Morris, 2003). As a result, we obtained significant positive correlations between the PALMS subscales and the corresponding factors of the validated REMM subscales (Table 6). The correlation between the total REMM and PALMS scores was strong and significant ($r_s = 0.85, P < 0.001$).

Furthermore, the Pearson's product-moment correlations between each PALMS subscale and the SMCSDS were very low,

Table 6. Between subscales of the PALMS & REMM ($n = 406$).

PALMS Subscales	REMM Subscales								
	Mastery	Appearance	Affiliation	Psychological condition	Enjoyment	Competition ego	Others' expectation	Physical condition	Total REMM
Mastery	0.74**	0.41**	0.42**	0.42**	0.49**	0.38**	0.32**	0.42**	0.60**
Appearance	0.31**	0.78**	0.38**	0.59**	0.56**	0.37**	0.08	0.74**	0.59**
Affiliation	0.38**	0.44**	0.71**	0.56**	0.60**	0.27**	0.16**	0.46**	0.56**
Psychological condition	0.28**	0.47**	0.47**	0.70**	0.49**	0.23**	0.19**	0.47**	0.51**
Enjoyment	0.41**	0.48**	0.45**	0.54**	0.67**	0.21**	0.01	0.57**	0.50**
Competition ego	0.57**	0.43**	0.29**	0.28**	0.28**	0.69**	0.49**	0.26**	0.62**
Others' expectation	0.15**	0.26**	0.28**	0.23**	0.10*	0.32**	0.59**	0.11*	0.38**
Financial gain	0.36**	0.33**	0.56**	0.35**	0.38**	0.23**	0.24**	0.32**	0.45**
To be with others	0.24	0.08	0.02	-0.02	-0.02	0.32**	0.53**	-0.07	0.25**
Total PALMS	0.63**	0.73**	0.63**	0.68**	0.65**	0.60**	0.47**	0.63**	0.85**
Note: = Spearman's rho. **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).									

ranging from -0.005 to 0.14. The total score of PALMS and the SMCSDS also indicated a weak correlation ($r = 0.06$). Thus, these results confirmed the participants' answers were not influenced by social desirability.

Discussion

In the present study, we aimed to assess the validity and reliability of the PALMS in an Iranian population. The final Farsi version of the scale was obtained after cross-cultural adaptation though its content validity was satisfactory for the Iranian physically active individuals. As a matter of fact, the final Farsi version of the PALMS has 9 factors and it showed high internal consistency and test-retest reliability.

To evaluate the factorial structure of the PALMS, EFA on the data revealed nine factors as: competition/ego, appearance, others' expectations, affiliation, psychological condition, enjoyment, mastery, financial gain, and to be with others. This result supported the findings of Zach *et al.*¹⁷ who also reported nine factors as: competition/ego, appearance, family and friends' expectations, health professionals' and employers' expectations, affiliation, physical condition, psychological condition, mastery, and enjoyment¹⁷. In fact, in this study, loading of the items on each factor was more identical to the original 8-factor structure that was reported by Morris and Rogers¹⁵ including: mastery, enjoyment, psychological condition, physical condition, appearance, other's expectations, affiliation, and competition/ego. However, there were a few differences between our factor structure and original factor structure. In the present study, the items of physical condition and appearance from the initial factor structure of the PALMS loaded on one factor entitled "physical appearance" except the item number 33 that was highly loaded on another factor known as "enjoyment". It may be due to the fact that the physical condition and appearance are not perceived as two different concepts but rather make similar sense to our

participants.

Items 1 and 7 that were loaded on the "other's expectation" factor in the initial factor structure by Morris and Rogers¹⁵ and items 8 and 20 that were loaded on the "affiliation factor" in the initial EFA by Morris and Rogers¹⁵ were loaded on two separate factors named "financial gain" and "to be with others", respectively. Similarly, in the Hebrew study, "others' expectation" was split into two separate factors; "expectations of family and friends" and "expectations of health professionals and employers".¹⁷ Emerging the financial gain subscale as an independent factor demonstrated that monetary issues are important in motivating individuals to take part in physical activity, at least for people in countries with economic hardships.

In addition, the items "Do activity with other" and "Do something in common with friends" that were loaded on the "to be with others" factor reflect the critical role of social connection and social networking for participation in physical activity. We can conclude that the motivation for some people to participate in physical activity is to improve their relationships and expand their social networks.²¹ Several studies demonstrated the importance of social relationships for sport continuation and the value of social support for improved physical activity levels.^{22,23} Interpreting out results by the self-determination theory (SDT), the social-contextual factors contribute to enhanced intrinsic motivations by improving autonomy and competence. The "mastery" and "competition/ego" factors, as well as the "psychological condition" factor were in complete agreement with the factor structure revealed by Morris and Rogers' study,¹⁵ except for item 2 ("Because it helps me relax") of the "psychological condition" factor that was loaded on the "enjoyment" factor.²⁴ Other studies in Australia and Malaysia also confirmed the same structure for "mastery", "competition/ego" factors, and "psychological condition" factors.^{16,18} It may refer to the stability of those factors in Farsi language. In general, the "enjoyment" and "mastery" factors can be considered as intrinsic motivation and other

factors represent extrinsic motivation based on SDT framework categories.⁹

Items from each subscale showed good internal consistency, which indicates good correlation among the items within a scale. However, the “other’s expectation” subscale had $\alpha = 0.62$ that was lower than other subscales but it was still satisfactory. Our results were in agreement with other studies evaluating the validity and reliability of the PALMS.^{16,18} They found good internal consistency for the subscales of the PLAMS. In item analysis of the current study, the item deleted alpha coefficient indicated that there was no inappropriate item in the subscales. Additionally, the item-total correlation, which measures the strength of association between items and their subscales, was acceptable. Given the fact that reliability of a questionnaire is correlated with its length, the PALMS still showed high internal consistency compared to its longer origin, REMM. Furthermore, the test-retest reliability showed high correlation for all subscales and the overall score of the PALMS. This is consistent with the Malaysian study on the PALMS, in which they assessed the test-retest reliability of the PALMS in two occasions four weeks apart and reported a high association between scores.¹⁸ Therefore, the data suggested that the PALMS is a stable instrument over time for assessing motives of participants in physical activity.

Evaluating the criterion validity, there was a strong positive correlation between scores from the PALMS and the REMM. The scores of each PALMS subscale also showed a good correlation with the corresponding REMM subscale. This was consistent with findings by other studies which validated the PALMS in other cultures,^{16,18} which also reported a good and strong correlation between the PALMS and the REMM subscales or other related psychological scales.

The association between the scores of the MCSDS and the subscales of the PALMS was very weak. This suggests that the PALMS does not drive participants to represent themselves in a socially perfect way.^{25,26} This notion has been also stressed by previous researches.^{16,18}

Supporting the PALMS usability and stability over different cultures, one can promote the idea that in comparison to other existing questionnaires assessing motivation for physical activity, the PALMS is more comprehensive and it is also applicable in both exercise and sports contexts. Assessing individual’s motives by the sports and exercise professionals as well as health authorities will be particularly helpful in improving participation rates. It could also guide individuals to find appropriate physical activities according to their own motives. This can facilitate improving the performance and long term adherence to exercise and physical activity.

However, this study was not without limitations. First, the item number 33 (“to improve cardiovascular fitness”) has a high loading on the enjoyment factor that is conceptually different from items in the “enjoyment” factor. Second, a relatively large package of the questionnaires might have led to boredom and decreased focus of participants when answering the questionnaires. Third, the questionnaires were self-reported, thereby the reporter’s bias could not be ruled out. Finally, our assessment of the factorial structure of the scale should be confirmed by conducting confirmatory factor analysis in additional larger samples. There is still need to extend the examination of psychometric properties of the PALMS to achieve a stable factor structure among different cultures. The current results further supported the validity and

reliability of the PALMS. The Farsi version of the PALMS is an instrument to measure individual’s motivation for physical activity in a typical Iranian population and it facilitates personalization of physical activity by discovering influential types of motivations. The current Farsi version of the PALMS could also be applied in future researches focusing on physical activity in Iran.

Acknowledgement

To access the Farsi version of the PALMS, you may contact the corresponding author.

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