Original Article

Validation of the Marathon Motivation Scale in Chile

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ABSTRACT

The objective of this work was to validate the Marathon Motivation Scale (MOMS) for its application in the Chilean context. The study used a non-experimental, descriptive and transversal design. The sample was non-probability and intentional and was composed of 250 subjects (143 male and 104 female) runners who participated in the International Marathon of Viña del Mar with an average age of 29.8 (TD=10.1) years. For the analysis of the data, an exploratory factorial analysis was carried out with free parameters, another one with seven factors fixed to the theoretical dimensions and a confirmatory factorial analysis with the items corresponding to the MOMS model. The validity and reliability of the Spanish version of the MOMS was checked in Chilean corridors. The original factorial model of 34 indicators grouped in seven factors did not present a good fit in the indicators of the exploratory factorial analysis. For this reason, seven indicators were eliminated that allowed a valid and reliable scale to be obtained to measure the reasons why Chilean runners participate in endurance races. The final model consists of 27 indicators distributed over the seven factors proposed by Ruiz and Zarauz (2011) in the Spanish version of the MOMS. **Keywords:** Motivation scale; Marathoners; Chilean validation.

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INTRODUCTION

To be motivated is to be driven to act, therefore it is inherent to the idea of being in movement, which implies the conduct put in action towards a determined goal or end (Chiecher, 2009; Paoloni, 2010), since the opposite would be a state of demotivation, which leads to the avoidance of certain conducts or to abandon participation (Ryan & Deci, 2009).

In relation to above, Calvo, Ureña, Martínez and Cervelló (2000) state that it is constituted by the direction and intensity of the effort, where the former refers to what the sportsman seeks, or his interest, in certain situations, establishing the purpose of his behaviour, and the latter indicates the amount of effort invested in the practice of sport. It is also important to consider some of the motivational factors that help athletes' performance. This is where Vallerand and Rousseau (2001) indicate that athletes can be motivated under external and internal stimuli, which favours intrinsic and extrinsic motivation as a multidimensional construct. In particular, Valle et al., (2010) considers motivation as a set of processes involved in the activation, direction, and persistence of behaviour. Therefore, the activation level, the choice between a set of action possibilities, and the concentration of attention and perseverance during a task or activity are the main motivational indicators. However, the concept's complexity of the term does not lie in these descriptive aspects as much as in delimiting and concretizing precisely that set of processes that activate, direct, and make a behaviour persist. In short, motivation is one of the most prominent factors that stimulate and maintain the participation of individuals in physical activity (Roychowdhury, 2018).

Taking into account the above, Masters, Ogles and Jolton (1993), developed an instrument which focused on studying the reasons and motivations of long-distance runners, which they called Motivations of Marathoners Scale (MOMS) (Carmack & Martens, 1979, Curtis & McTeer, 1981, Masters and Lambert, 1989, Summers, Machin & Sargent, 1983; Summers, Sargent, Levey & Murray, 1982), instrument consisting of 56 items, which are grouped into 9 scales: Health orientation; Weight; Affiliation; Recognition; Competition; Overcoming personal goals; Psychological goals; Self-esteem and Meaning of life. At the same time, these nine scales are distributed by creating four dimensions of motives for running: Motives of physical health (scales of Orientation to health and Weight), Social motives (scales of Affiliation and Recognition), Motives of achievement (scales of Competition and Overcoming of personal goals) and Psychological motives (scales of psychological Goals, Self-esteem and Meaning of life). Each item is scored following a Likert scale.

The Spanish version of MOMS was translated and validated by Zarauz and Ruiz-Juan (2011). This instrument had 34 items and 7 scales: Orientation to health; Weight, Overcoming personal goals and Competition; Recognition; Affiliation; Psychological Goal and finally Life Meaning and Self-esteem. As in the original instrument, the answers are obtained with a Likert scale.

Heazlewood et al., (2012) studied the effectiveness of the MOMS when researching motivational sources in different sports disciplines. The results obtained by 1,590 athletes (739 males and 851 females) after applying the MOMS questionnaire through the Internet during the 2010 Pan American Games in Medellin, showed that with respect to the 9 scales of the instrument of coping, self-esteem, sense of life, health, concern for weight, affiliation, recognition and achievement of personal goals, they obtained values higher than 0.8 while the performance scale had a value greater than 0.7.

In 2015, several researchers used MOMS as the basis for data collection. Lendrum (2015) decided to explore the experiences of women marathon runners. The conclusions show how this group of women base their participation in these events in a recreational way, instead of a competitive one. They run for various

motivations such as health and fitness, mental health, problem solving, the social component of the career, goal achievement, freedom and, self-confidence.

Subsequently, Zach, Xia, Zeev, Arnon, Choresh and Tenenbaum (2015), tested and expanded the MOMS model to examine the evidence for the best solution to cross-cultural validation of the model, taking as reference the Self-Determination Theory (Deci & Ryan, 1985), distributing it to 306 marathon runners male and female ages between 20 and 77 who had already ran a marathon; it was confirmed that the nature of the motives for running a marathon is not hierarchically oriented; showing that, all factors could best be considered as independent factors. In addition, two additional factors were distinguished regarding the 9 scales of the instrument. For psychological coping: a) emotional coping b) management of daily life. For General Health Orientation: a) reduction of disease prevalence and longevity b) staying fit.

Lastly, Zarauz, Ruiz-Juan and Flóres-Allende (2016), analysed the motivations that the subjects have to carry out physical exercise. Specifically, they studied what are the relations between the motives to run and the training habits of the marathonists. In conclusion, it was obtained that the number of participants in this type of competitions is clearly increasing. Their participation benefits them to improve their self-esteem, health, and give meaning to their lives, especially in women who face these competitions with greater commitment and seriousness than men.

Therefore, in this study the objective is to determine the psychometric properties of the Spanish version of the MOMS in popular runners in Chile. The focus is to check the reliability and validity of the scale for measuring the motivations of this type of runner.

MATERIALS AND METHODOLOGY

Participants

The study employed a non-experimental, descriptive, cross-sectional design. The sample was non-probability and intentional. It consisted of 250 subjects (143 male and 104 female) runners who participated in the International Marathon of Viña del Mar (Test 10km) with an average age of 29.8 (TD=10.1) years.

Instrument

The questionnaire used was the MOMS scale translated and validated into Spanish version by Zarauz and Ruiz-Juan (2011) of 34 items that includes seven dimensions (Health, Weight, Recognition, Affiliation, Psychological Goal and Life Meaning). The items were evaluated on a 7-point Likert scale where a score of 1 would indicate that for you that reason is not a reason to run, up to a score of 7 would indicate that that reason is a very important reason to run. Several questions related to socio-demographic variables such as age and gender were also included.

Procedure

Authorization to contact research participants was obtained from the event organization. All the questionnaires were applied in person and in paper format to the participants of the 10-kilometre race. The questionnaires and the informed consent forms were collected after the event.

Statistical analysis

For the data analysis, an exploratory factorial analysis (EFA) was carried out with free parameters, another EFA with seven factors fixed to the theoretical dimensions and a confirmatory factorial analysis (CFA) with the items corresponding to the MOMS model. The EFA were performed using the FACTOR program based

on the recommendations of Lloret-Segura, Ferreres-Traver, Hernández-Baeza and Tomás-Marco (2014). This analysis was performed using the Maximum Likelihood Method (MLM) and the Varimax rotation method. To determine the number of factors the Implemented Parallel Analysis Optimization procedure was used (Timmerman & Lorenzo-Seva, 2011). To check the fit of the model the coefficients of the root mean square error (RMSE) and the gamma or goodness of fit index (GFI) proposed by Tanaka and Huba (1989) were analysed. The replicability of factors derived from EFA was also checked with the Generalized G-H Index. Kaiser Meyer Olkin's (KMO) sampling adequacy measurements and Barlett's sphericity test were also observed. On the other hand, items with factorial loads lower than .40 or higher by two or more factors were eliminated before performing the next EFA. Lastly, the theoretical interpretability of the factorial solution extracted from the EFA was checked.

Next, a confirmatory factor analysis (CFA) was performed, applying the Robust method of Maximum Likelihood Estimation (MLE) in order to correct the possible absence of multivariate normality and using the χ2 by Satorra Bentler (Chou, Bentler & Satorra, 1991) statistics. In the evaluation of the global adjustment, different index of goodness of adjustment were used, recommended in the literature (Kline, 2005), such as the Chi-square test and its robust correction provided by Satorra-Bentler (S-B χ^2) (Satorra & Bentler, 1994). Also, other coefficients were calculated that allowed checking the adequacy of the models proposed, as the ratio of χ^2 and its degrees of freedom (χ2/df; Wheaton et al., 1977), being acceptable values lower than five (Byrne, 2009). On the other hand, the coefficients of the robust goodness-of-fit index of the proposed model were checked corresponding to the Comparative Fit Index (CFI) and the Incremental Fit Index (IFI). Values above .90 are considered a good fit for these index (MacCallum & Austin, 2000). Lastly, the Root Mean Square Error of Approximation (RMSEA) is shown. Scores lower than .08 (Browne & Cudeck, 1993) are necessary to be consider a good fit.

When evaluating the reliability of the scales, three measures were taken into account: Cronbach's Alpha, Compound Reliability (CF), and the Average Variance Extracted (AVE) for each factor (Hair, Black, Babin & Anderson, 2014). On the other hand, the convergent validity was also verified through the significance of the factorial loads in their respective dimension and the values of the associated t-tests. In addition, discriminant validity, which has to do with the clear distinction between any pair of constructs, was evaluated using the method suggested by Fornell and Larcker (1981). This method admits discriminant validity if the square root of the AVE value of a given factor is greater than the correlation coefficients between the factor and any other factor of the proposed scale. Another criterion to ensure discriminatory validity states that the correlations between the various pairs of factors must be less than .85 (Kline, 2005).

RESULTS

Descriptive statistics

Table 1 shows the mean, standard deviation, asymmetry and kurtosis for each indicator. Several reasons are considered important enough reasons to run: to improve my health (M=6.14; TD=1.28), to compete against myself (M=6.01; TD=1.53), to prolong my life (M=5.53; TD=1.65), to reduce the probability of having a heart attack (M=5.02; TD=1.81), because it is a positive emotional experience (M=5.77; TD=1.43), to feel proud of myself (M=5.32; TD=1.79), to have a spirit of overcoming (M=5.54; TD=1.59), to improve my current mark (M=5.41; TD=1.72) and to prevent diseases (M=5.13; TD=1.73). As for the values of asymmetry and kurtosis are acceptable as most are less than 3.0 in all items (Chou and Bentler, 1995). Only indicator M8 presented a kurtosis value higher than this cut-off point. However, it was decided to keep this item for further exploratory factor analysis.

Table 1. Mean, standard deviation, asymmetry and kurtosis of the indicators of the scale of motives of Chilean runners to participate in endurance races.

	Item	Media (SD)	Asymmetry	Kurtosis
M1	To help control my weight	4.61 (1.93)	-.46	-.84
M2	To compete with others	3.65 (2.04)	.18	-1.26
M3	To earn the respect of peers	2.57 (1.86)	1.04	-.05
M4	To lose weight	4.09 (2.03)	-.17	-1.25
M5	To improve my running speed (runs)	4.98 (1.87)	-.81	-.35
M6	To earn people's respect	2.64 (1.86)	.89	-.43
M7	To socialize with other runners	4.76 (1.81)	-.57	-.58
M8	To improve my health	6.14 (1.28)	-1.95	4.20
M9	To compete against myself	6.01 (1.53)	-1.83	2.89
M10	To have something in common with other people	4.05 (2.04)	-.14	-1.22
M11	To prolong my life	5.53 (1.65)	-1.16	.55
M12	To meet people	4.26 (1.85)	-.30	-.87
M13	To make my family and friends proud	3.46 (2.00)	.32	-1.12
M14	To have more purposes in my life	4.39 (1.97)	-.34	-1.06
M15	To look thinner	3.83 (2.08)	-.01	-1.33
M16	To try to run faster	4.98 (1.85)	-.73	-.51
M17	To participate with my family or friends	4.95 (1.80)	-.67	-.50
M18	To feel completely fulfilled	4.75 (1.90)	-.54	-.86
M19	To reduce the risk of a heart attack	5.02 (1.81)	-.74	-.36
M20	To make my life more complete	4.89 (1.89)	-.60	-.71
M21	To share team spirit with other runners	4.92 (1.92)	-.72	-.57
M22	Because it's a positive emotional experience	5.77 (1.43)	-1.21	.95
M23	To be proud of myself	5.32 (1.79)	-.91	-.19
M24	To be with friends	4.80 (1.83)	-.54	-.69
M25	To have a spirit of overcoming	5.54 (1.59)	-1.22	.89
M26	To improve my current personal best	5.41 (1.72)	-1.08	.35
M27	To spend time alone and think/organize my thoughts	4.14 (1.98)	-.17	-1.15
M28	To concentrate on my thoughts	4.41 (1.99)	-.30	-1.10
M29	To solve problems	3.82 (2.06)	.05	-1.27
M30	To prevent disease	5.13 (1.73)	-.88	-.08
M31	For people to notice me	2.51 (1.87)	1.04	-.25
M32	To see if I can beat a certain record	4.62 (2.03)	-.56	-.91
M33	To achieve recognition/prestige	2.57 (1.76)	.85	-.44
M34	For others to praise me	2.14 (1.64)	1.42	1.08

Note: SD= Standard Deviation.

Exploratory factorial analysis

The internal validity of the scale of the Chilean runners' motives for participating in endurance races was contrasted through an exploratory factorial analysis (EFA), following the process recommended by Lloret-Segura et al., (2014), and subsequently, a confirmatory factorial analysis (CFA). First, an EFA was performed including the 34 items of the scale. The Parallel Analysis recommended grouping the indicators into six factors; however, the analysis was first carried out determining seven factors according to the grouping

proposed by the MOMS scale (Ruiz & Zarauz, 2011). This analysis revealed a good fit, although one factor retained only one indicator. For this reason, this solution was discarded and the EFA was tested with six factors, as recommended by the parallel analysis. Following the above criteria, three indicators were eliminated due to factorial loads lower than .40 or higher than .40 in two or more factors (M2, M8 and M9).

The results of the EFA identified five factors that coincided with Ruiz and Zarauz´s proposal (2011) and one factor that grouped two of the factors proposed by the Spanish version of MOMS: orientation towards health, the meaning of life and self-esteem (9 items), recognition (6 items), affiliation (6 items), achieving personal goals and overcoming competition (4 items), weight (3 items) and psychological goals (3 items).

To test the fit of the model, the coefficients of the root mean square error (RMSE) and the gamma or GFI index were analysed, revealing values within the recommended cut-off points: RMSE =.03 (<.05) GFI=.99 (>.95). On the other hand, the Generalized G-H Index revealed values higher than .80 in all factors detected by the EFA (ranging between .82 and .89), indicating a good replicability of the dimensions in other studies (Ferrando & Lorenzo-Seva, 2017). The variance explained by the 31 items grouped in the six factors was 63.06%.

Table 2. Factorial rotation to the structure of the scale of motives of Chilean runners to participate in resistance races, communalities, self-values, and explained variation.

		F1	F2	F3	F4	F5	F6	Com.
	Factor 1 - Orientation towards health, meaning of life and self-esteem							
M11	To prolong my life	.439						.34
M14	To have more purpose in my life	.661						.51
M18	To feel completely fulfilled	.459						.40
M19	To reduce the risk of a heart attack	.421						.39
M20	To make my life more complete	.837						.75
M22	Because it's a positive emotional experience	.520						.44
M23	To be proud of myself	.651						.44
M25	To have a spirit of overcoming	.519						.49
M30	To prevent disease	.424						.36
	Factor 2 - Recognition							
M3	To earn the respect of peers		.686					.49
M6	To earn other people's respect		.684					.50
M13	To make family and friends proud		.546					.54
M31	For people to notice me		.778					.63
M33	To achieve recognition/prestige		.797					.70
M34	For others to praise me		.785					.63
	Factor 3 - Affiliation							
M7	To socialize with other runners			.759				.61
M10	To have something in common with other runners			.607				.48
M12	To meet people			.720				.58
M17	To participate with my family or friends			.443				.25
M21	To share a team spirit with other runners			.714				.63
M24	To be with friends			.683				.55

	Factor 4 - Overcoming personal goals - Competition							
M5	To improve my running speed (runs)				.694			.54
M16	To try to run faster				.593			.51
M26	To improve my current record				.774			.65
M32	To see if I can beat a certain record				.720			.56
	Factor 5 -Weight							
M1	To help control my weight					.699		.55
M4	To lose weight					.833		.71
M15	To look thinner					.767		.68
	Factor 6 - Psychological Goal							
M27	To spend time alone and think/organize my thoughts						.851	.79
M28	To concentrate on my thoughts						.801	.74
M29	To solve problems						.714	.66
	G H Index	.85	.89	.85	.82	.85	.86	
	Items	9	6	6	4	3	3	

Note: Com.= Communality.

Confirmatory factorial analysis

Several CFAs were carried out in order to test the adjustment of the original MOMS scale (34 items grouped in 7 factors) that derived from the EFA (31 items grouped in 6 factors). As we can see in Table 3, both the original factorial structure and the derived factorial structure from the EFA showed good adjustment indices. Thus, for the original model, IFI, CFI and NNFI values were lower than the cut-off point recommended by literature (<.90).

For this reason, several respecifications of the models were made, eliminating those items whose factorial loads were very small (<.60) and those that presented high residual values. Thereby, the model derived from the original MOMS factor structure allowed the retention of more indicators (27 items in 7 factors), revealing a good fit: significant chi-square ($\chi2=689.41$, gl=303, $p<.01$) and a normalized chi-square value ($\chi2/gl=1.67$) lower than 3, and the RMSEA index showed a value of .060 (Confidence interval=.052-.072), lower than .08. In the same line, the rest of the indices revealed a good fit of the model, since they presented values higher than .90: CFI=.90 and IFI=.90. Regarding the model derived by the EFA, eight indicators needed to be eliminated to achieve a good fit of the model.

After the EFA and the CFA, the indicators eliminated in both models were the following: M2 (to compete with others), M8 (to improve my health), M9 (to compete with myself), M13 (to make my family or friends proud), M17 (to participate with my family or friends), and M31 (to make people notice me). In the case of the model derived from the previous EFA, M11 (to prolong my life), M19 (to reduce the risk of a heart attack) and M30 (to prevent disease) were also eliminated. While in the original model, the M26 indicator was also removed (to improve my current record).

Therefore, it was decided to select the final model derived from the original structure proposed by the Spanish version of the MOMS, because it allowed the retention of more indicators and revealed a better fit in the data analysed in Chilean runners.

Table 3. Scale fit goodness indices for each model.

Model	χ^2 (df)	χ^2/ df	RMSEA (IC)	CFI	IFI
Model derived from EFA					
Initial model: 31 items – 6 factors	1123.80 (419)	2.68	.070 (.064 -.076)	.84	.84
Final model: 23 items – 6 factors	551.36 (215)	2.56	.067 (.058 -.075)	.90	.90
Model derived from MOMS					
Initial model: 34 items – 7 factors	1273.77 (506)	2.52	.065 (.059 -.070)	.84	.85
Final model: 27 items – 7 factors	689.41 (303)	1.67	.060 (.052 -.067)	.90	.90

To analyse the reliability of this model, Cronbach's alpha, composite reliability (CF), and Average Varance Extracted (AVE) measurements were observed (see table 4). Cronbach's Alpha values were more than .70 of that recommended by the literature (Hair et al., 2014). This criterion was also met for CR values (Fornell & Larcker, 1981) ranging from .72 to .88. In the case of AVE values, factors 1 and 4 were found to have values greater than .50 of that recommended by the literature (Bagozzi & Yi, 1988). However, factors 1 (.47) and 7 (.44) had values lower than .50. According to Hatcher (1994), when the reliability of the construct is acceptable, a marginally low AVE value can be accepted. It was therefore decided to retain these factors without combining them with other factors because of their relevance and theoretical interpretability.

Table 4. Factorial loads, composite reliability, measurement of the variance extracted and Cronbach alpha from the indicators of the final model of the scale of motives of Chilean runners to participate in endurance races.

		λ	α	CR	AVE
	Factor 1 - Health orientation		.72	.72	.47
M11	To prolong my life	.66			
M19	To reduce risk of a heart attack	.73			
M20	To make my life more complete	.66			
	Factor 2 -Weight		.83	.83	.62
M1	To help control my weight	.73			
M4	To lose weight	.84			
M15	To look thinner	.79			
	Factor 3 - Overcoming personal goals-Competition		.76	.76	.52
M5	To improve my running speed (runs)	.72			
M16	To try to run faster	.79			
M32	To see if I can beat a certain record	.65			
	Factor 4 - Recognition		.84	.84	.56
M3	To earn the respect of my peers	.71			
M6	To earn other people's respect	.75			
M33	To achieve recognition/prestige	.81			
M34	For others to praise me	.73			
	Factor 5 - Affiliation		.85	.85	.53
M7	To socialize with other runners	.77			
M10	To have something in common with other people	.63			
M12	To meet people	.73			

M21	To share a team spirit with other runners	.80			
M24	To be with friends	.77			
	Factor 6 - Psychological Goal		.88	.88	.71
M27	To spend time alone and think/organize my thoughts	.85			
M28	To concentrate on my thoughts	.87			
M29	To solve problems	.80			
	Factor 7 - Life Meaning and Self-Esteem		.82	.82	.44
M14	To have more purpose in my life	.65			
M18	To feel completely fulfilled	.61			
M20	To make my life more complete	.78			
M22	Because it's a positive emotional experience	.62			
M23	To be proud of myself	.65			
M25	To have a spirit of overcoming	.65			

Note: CR=Composite Reliability; AVE=Average Variance Extracted.

It was verified that the values of the t-test associated to the factorial loads of the items were superior to 1.96 ($p<.05$), ranging from 7.16 to 15.59, allowing the convergent validity to be tested. As for the discriminant validity, on one hand, we verified that all the correlations between the different factors were lower than .85, fulfilling the criterion as seen in Table 5. On the other hand, it was verified that the square root of the AVE was higher than the correlation between pairs of factors, also fulfilling this criterion.

Table 5. Correlations between scale factors on the motives of Chilean runners to participate in endurance races.

	F1	**F2**	**F3**	**F4**	**F5**	**F6**	**F7**
F1 - Health orientation	.68						
F2 - Weight	.41**	.79					
F3 - Meeting Personal Goals - Overcoming Competition	.33**	.25**	.72				
F4 - Recognition	.07	.13*	.20**	.75			
F5 - Affiliation	.37**	.07	.32**	.19**	.73		
F6 - Psychological Goals	.32**	.26**	.30**	.22**	.35**	.84	
Factor 7 – Life Meaning and Self-Esteem	.54**	.20**	.38**	.14*	.43**	.30**	.66

*Note: ** $p < 0.01$. The diagonal offers the values of the √AVE.*

DISCUSSION

This paper analyses the psychometric properties of the Spanish version of the MOMS in Chilean runners. It was first observed that the EFA results suggested the grouping of the indicators in six factors that coincide with the components obtained by Zarauz and Ruiz (2011), although three of the four items of "orientation towards health" end up being integrated with the six indicators of the "meaning of life and self-esteem" factor into a single dimension. This could be explained by the type of population from which the sample was drawn, which consisted of a group of competitors of an open race and therefore probably healthy.

On the other hand, the CFA on the original structure of 34 items and seven factors allowed, after several respecifications, to find a model that fit better than the model derived from the EFA with 31 indicators and six factors. This model retained more items than the EFA model, respecting the grouping of seven factors

proposed by Ruiz and Zarauz (2011) in the Spanish version of the MOMS. The final model consisted of 27 items grouped into 7 factors: health orientation (3 items), weight (3 items), achievement of personal goals and competition (3 items), recognition (4 items), affiliation (5 items), psychological goal (3 items) and meaning of life and self-esteem (6 items).

In any case, in this study we observe a tendency towards the reduction of indicators at the time of analysing the runners' motivations to participate in open races. Although having in consideration a similar number of factors proposed by other versions of this scale. It should be kept in mind that the scale proposed by Masters et al. (1993) included 56 items grouped into 9 scales. Subsequent studies have suggested reducing the number of factors (Haezelwood et al., 2012; Ruiz & Zarauz, 2011) or increasing their number (Zach et al., 2015).

In this regard, it is recommended to maintain the structure of the instrument as it is, leaving the factor "Orientation towards health" as an independent dimension of "Significance of life and Self-esteem" for its use on different populations, not necessarily the competitive kind. This is also recommended for other studies in the field of health.

This work has a series of limitations associated with the size of the sample and the type of non-probability intentional sampling, so the results should not be generalized to the set of popular Chilean runners. On the other hand, the initial model derived from the original factorial structure proposed by the Spanish version of the MOMS does not show a good fit in both the EFA and the CFA, so the validity and reliability of the scale should be checked in other populations of runners in different Spanish-speaking countries in order to compare groups. As Zach et al. (2015) indicate, it is necessary to analyse the psychometric properties of this scale in other cultural contexts and in different types of participants in endurance races. The initial EFA suggests the grouping of some factors (health orientation, life meaning and self-esteem) that could be measuring the same dimension. Because the CFA adjustment of the six-factor solution presented more problems in achieving a good adjustment, it was decided to discard this factorial solution. However, it would be advisable to check in future work if these dimensions can work better by integrating into a single factor.

CONCLUSIONS

The validity and reliability of the Spanish version of the MOMS was checked in Chilean runners. The original factorial model of 34 indicators grouped in seven factors did not show a good fit in the CFA indicators. For this reason, seven indicators were removed that allowed a valid and reliable scale to measure the reasons why Chilean runners participate in endurance races. The final model consists of 27 indicators distributed over the seven factors proposed by Ruiz and Zarauz (2011) in the Spanish version of the MOMS.

AUTHOR CONTRIBUTIONS

Duclos-Bastías, Vallejo-Reyes, Giakoni-Ramírez and David Parra-Camacho contributed to the design and implementation of this study, to the analysis of the results and to the writing of the manuscript.

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