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# Determining psychometric properties of Drive for Muscularity Attitudes Questionnaire (DMAQ) among Iranian athletes

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## Abstract

**Introduction:** In recent years, physical attractiveness among male athletes received new standards and led to changes in attitudes related to muscle mass in them, which requires a comprehensive assessment. Therefore, the aim of this study was to determine the psychometric properties of the Drive for Muscularity Attitudes Questionnaire among Iranian athlete.

**Materials and Methods:** The present study was a correlational and validation study. The statistical population of this research included all in the team and individualized athletes in Tehran, in 2016, that 300 athletes were selected through multi-stage cluster sampling, moreover, they responded to the research instrument including the drive for muscularity, drive for muscularity attitudes, exercise dependency (EDS) and mindfulness inventory for sport (MIS). Data were analyzed using exploratory factor analysis, Cronbach's alpha and Pearson correlation by SPSS and LISREL software.

**Results:** Exploratory factor analysis supports the original single-factor pattern of the model that explains 32.27% of the variance. Confirmatory factor analysis results also indicate the optimal fitness of the items. Moreover, the model of criterion validity indicating a good correlation between DMAQ with DMQ, EDS, MIS and its subscales. Furthermore, investigating the internal consistency through Cronbach's alpha showed the satisfactory internal stability of the questionnaire.

**Conclusion:** Based on the results of the study, the Persian version of Drive for Muscularity Attitudes Questionnaire has appropriate reliability and validity in Iranian athletes' population and it is an appropriate instrument for screening, and research opportunities in the field of sport psychology.

**Keywords:** Athletes, Muscularity attitude, Psychometric

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### Introduction

Physical attraction is one of the issues that have new standards in the modern era (1). Today, social pressures on men to have prominent and beautiful muscles has increased (2), and muscle mass has become the favorite body gesture of many males (3). This point increased the risk of eating disorders (4), neurological anorexia (5), anabolic steroid use (6), and receiving psychological services in communities (7).

The drive for muscularity is actually defined by the individual's attitude to the own muscle mass and how much muscle mass should be changed (8). Athletes tend to have high muscle mass and to increase the muscle mass than non-athletes (9), and in some cases, it is their main cause for exercising. Sometimes paying too much attention to this issue increases the prevalence of nutritional disturbances and habits of doping in a wide range of them (10). In this regard, various studies also pointed out that athlete are more likely to develop muscularity disorders and change attitudes regarding their body image (11,12). To identify this risk, researchers and educators sought to recognize and assess the attitude of muscularity in individuals in order to obtain a certain definition of the desire of men to reach the muscular body gesture (13). Many researchers seeking to understand this attitude in men tried to design different instrument. One of the most widely used measurement instrument that have extensive empirical support is the eight-question Drive for Muscularity Attitudes Questionnaire, developed by Morrison, Morrison et al. (14). This questionnaire was developed to improve the measurement in comparison with other measurement instrument in the field of muscular tendencies, such as the drive for muscularity scale (14) and muscularity attitude questionnaire (15). Since the mentioned instrument had limited constraints, such as inappropriate factor

structure and distinguish validity and lack of publicity in questions (16).

To design a Drive for Muscularity Attitudes Questionnaire, Morrison et al. (17) conducted three studies on undergraduate male students in Canada. In the first study, 41 items were selected based on reviewing the history and examining the attitude items of muscularity scale (14) and muscularity attitude (15). All responses were placed in the Likert scale from "completely agree" to "completely disagree". After analyzing the data, the results of main components analysis showed that the factor load of 8 questions was within a factor and the Drive for Muscularity Attitudes Questionnaire had appropriate construct validity. Moreover, the results of the internal consistency analysis with Cronbach's alpha were 0.84, which showed a satisfactory internal consistency of this questionnaire. In subsequent studies, male athletes scored higher than non-athlete peers (17). For more experimental support, Morrison and Harriman (18) reviewed the psychometric properties of undergraduate male students in Canada and reported that the findings supported the one-factor structure and the Cronbach's alpha was 0.82, indicating a reliable internal consistency (18). In another study, Tod et al. (13) examined the validity and reliability of the Drive for Muscularity Attitudes Questionnaire in a sample of British undergraduate male students and mentioned the desirable structure validity of this questionnaire. The Drive for Muscularity Attitudes Questionnaire showed a positive correlation with other scales of a tendency to muscle mass and a negative relationship with the measurement of a tendency to thinness. Furthermore, the reliability was reported 0.81 through the test-retest and the correlation coefficient was reported 0.78, which showed a consistent and consistent internal consistency of the questionnaire over the time (13).

Ryan et al. (19) conducted a study to determine the Drive for Muscularity Attitudes Questionnaire in 275 Irish male samples; they also pointed to the desirability of the optimal constructive validity of this questionnaire, and showed that exploratory and confirmatory factor analysis leads to the dimensionless structure of the questionnaire consistent with the previous research (19). Although it was suggested to evaluate the psychometric properties of this questionnaire with different samples (13,20), however, no study was performed so far regarding the athletic sample. Considering that athletes are more sensitive to the muscularity of their body, they are more likely to encounter with dissatisfying with muscle mass (12), body dysmorphic disorder (21), and eating disorders (5). Considering the changing nature of sports culture in Iran and the increasing the number of athletes who seek to use supplements and steroids to acquire ideal muscle (10), the necessity of using an effective instrument for determining the tendency to the muscular attitude in the field of sport is essential. In this regard, although the psychometric properties of the Drive for Muscularity Attitudes Questionnaire were approved by the designers (17) the psychometric properties of this questionnaire were not studied in the population of Iranian athletes, so far. As each questionnaire is influenced by cultural factors and how people interpret the questionnaire items, which can question the validity of the questionnaire (22), it is necessary to recognize and re-evaluate the psychometric properties of the new society. Therefore, the purpose of this study was to determine the psychometric properties of the Drive for Muscularity Attitudes Questionnaire among Iranian athletes.

### **Materials and Methods**

The present work was a descriptive and validation study. The statistical population of the study included all team and individual

athletes in Tehran, in 2016. According to statistical experts (23,24), it is appropriate to select 10 to 20 subjects per each item of the questionnaire to achieve adequate sample size in factor analysis studies and structural equations. In this regard, Klein (23) and Tabachinc and Fidel (24) proposed the following formula for the minimum sample size:  $10Q < n < 20Q$  ( $Q =$  number of questionnaire items)

Considering the fact that there are 8 questions in the Drive for Muscularity Attitudes Questionnaire, and as the number of samples more, it increases the likelihood of fitting the hypothesized models and construct validity (24); a total of 282 athletes (elite, semi-expert and amateur) from team and individual disciplines completed the questionnaires randomly. The definitions of athletic levels in this study are as the following: Elite athletes include athletes under the membership of national teams or clubs of the country, semi-expert athletes include racers at the city and province level, and finally, amateur athletes include the athletes who have the experience of at least six months and at most one year participation in a single team or individual sport course (25,26). The samples were selected randomly from 22 districts of Tehran province and then two sports clubs were selected randomly from each region. Then, by referring to sports clubs in each region, the questionnaires were distributed and then collected among athletes. The sports fields of athletes included weightlifting (5.8%), soccer (22.2%), volleyball (1.4%), wrestling (16.5%), judo (9.1%), boxing (9.9%), kickboxing (5.8%), bodybuilding (7.8%), karate (12.8%), and basketball (6.2%), which all were selected in relation to athletes working in these fields in these areas.

The inclusion criteria for entering the research included: 1. the minimum education level of high school, 2. the age

range of 18 to 40 years, 3. At least six months of activity in the relevant field. 4. Conscientious and voluntary consent to participate in the research. Moreover, the exclusion criteria included: 1. Sports inactivity, 2. Unwillingness to participate in research, 3. Incomplete completion of the questionnaire.

Research instrument

A) *Drive for Muscularity Attitudes Questionnaire (DMAQ)*: The present questionnaire is an 8-point scale that was first developed by Morrison et al. (17) to assess the drive for muscularity attitudes in Canadian men. This questionnaire has a one-factor structure. It is scored in a 5-point Likert scale (1= completely disagree, 2= disagree, 3= do not mind, 4= agree, and 5 = completely agree), with the minimum and maximum score in this instrument in the range of 8 to 40 points, respectively. Morrison and Harriman (18) reported the internal consistency of the questionnaire as 0.84. Moreover, the present questionnaire showed a positive correlation with social desirability and negative correlation with muscular satisfaction (18). Tod et al. (13), reported the reliability of the Drive for Muscularity Attitudes Questionnaire through test-retest as 0.81 with a correlation coefficient of 0.78, indicating an appropriate and consistent internal consistency of the questionnaire over the time (13). Rayan and Morrison (19) also reported the internal consistency of this questionnaire through the Cronbach's alpha of 0.82 and showed that the questionnaire has a positive relationship with behaviors seeking to improve muscle mass.

B) *Drive for Muscularity Questionnaire (DMQ)*: This questionnaire was first developed by McCreay et al. (8) to measure attitudes and behaviors related to muscularity; its scoring is a 6-point Likert from "never" to "always". McCreay and Sass (2004) reported a reliability of 0.86 to 0.92,

while in Iran Molodi, et al. (27) reported Cronbach's alpha of 0.82, and in the convergent validity of the questionnaire, and there was a significant correlation with eating disorders questionnaire and functional disorders.

C) *Exercise Dependency Questionnaire (EDS)*: This questionnaire was arranged by Hausenblas et al. (28) on a 21-point scale that measures the symptoms of reliance on exercise based on DSM criteria. Scoring this test is based on a 6-point Likert grade. Its subscales are tolerance, disusing effects, continuity, lack of control, reduction in the frequency, other activities, time and intent. Cronbach's alpha coefficient for dependence on general exercise was 0.93, for tolerance was 0.82, for disusing effects was 0.83, for continuity was 0.89, for lack of control was 0.76, for the decrease in frequency of other activities was 0.77, for a time was 0.82, and it was 0.89 for intention (28). Moreover, in Iran, Abdoli et al. (29) investigating the psychometric properties of this questionnaire, pointed out its satisfactory reliability and validity coefficients among Iranian athletes.

D) *Mindfulness Inventory for Sport (MIS)*: This questionnaire was developed by Thienot et al. (30). The questionnaire consists of 15 questions with a Likert scale of 1= "almost never" to 6= "almost always", which measures three levels of awareness, judgment, and decentralization. The mean of the obtained numbers represents the total mindfulness, and the higher the number indicates the more mindfulness. Validity and reliability of this questionnaire were obtained in Iran, however, considering the fact that the questionnaire is independent of culture and ethnicity, its validity and internal reliability are 0.77, 0.78, and 0.77, respectively, for the consciousness, judgment, and decentralization as reported by Thienot. In addition, Hemyat Talab et al., in Iran (31), showed that the results of the

confirmatory factor analysis indicated that the index of fitting goodness was 0.90 and the index of the adaptive fitting goodness was 0.94. Cronbach's alpha coefficient for awareness was 0.79, for non-judgment was 0.86, and it was 0.83 for re-concentration. The research findings confirmed the validity and reliability of the questionnaire.

To implement the present study, using the translation-retranslation method, the accuracy of Drive for Muscularity Attitudes Questionnaire translation was first confirmed by some experts and translators. First, considering the ethical dimensions of the research, the original author's formal permission was received for the implementation of the questionnaire and then the implementation stages proceeded. Using the translation-retranslation method to implement the questionnaire it was first translated by three psychologists and then the Persian translation was translated by three English translators. Finally, by comparing two texts (the original text and the text derived from the Persian translation into English), the necessary corrections were made and the final form was prepared. Furthermore, to evaluate the content validity, this version was provided to eight experts in the field of psychology and sports sciences and the content validity was also reported by providing some suggestions and slight corrections using the formal validity coefficient (CVR) higher than 0.75 (32). Then the questionnaire was distributed among 50 students for a preliminary study and a final version was prepared among research samples due to the lack of problems related to understanding the items. After the initial implementation and correction, the

### **Result**

First, after deleting invalid questionnaires, 282 valid questionnaires were analyzed and evaluated. Based on the demographic findings, the athletes participating in the study had mean age ( $24.12 \pm 6.57$ ), sport

questionnaires were ready for distribution in the target society.

In the next step, the researcher, after coordinating with the sports clubs and the relevant authorities presented at the site of each clubs, and after explaining the research, ensuring the confidentiality of the information and attracting the athletes, they were invited to contribute to the implementation of the research through completing the questionnaires. It should be noted that the time limit in the process of completing the questionnaires was not considered. In this study, the provisions raised in the Helsinki Statement will be considered, including explaining the research objectives and obtaining informed consent from the units under study, participating in the research optionally, responding the questions and making the results available if desired (33). Moreover, to prevent social desirability or popular acceptance in the community among respondents (34), they were informed that inserting their names is not required and no right or wrong answer to the questions is considered.

To analyze the data, Kaiser-Meyer-Olkin test was used to assess the sufficiency of the sample size and Bartlett of sphericity test was used to examine the data functionality. Then, exploratory factor analysis was used to determine the number of factors and Confirmatory Factor Analysis was used for the construct validity of the questionnaire. Moreover, to evaluate the convergent validity, Pearson correlation was used and to measure the internal consistency, Cronbach's alpha was used.

experiences ( $4 \pm 1.57$ ) and BMI ( $23.89 \pm 18$ ), respectively, and other demographical components as the following table.

**Table 1.** Demographic characteristics of participant

	Demographic	Frequency	Percent
Degree	High school	147	52.12
	Undergraduate	110	39.0
	Graduate	25	8.86
Skill level	Amateur	80	28.36
	Semi-expert	106	37.58
	Elite	96	34.04

**Table 2.** Mean and standard deviation of variables

Variable	Mean	Standard Deviation	Min	Max	N
DMAQ	29.56	5.49	41	14	243

To investigate the validity of the test, three methods were used: 1. Content validity, 2. Contractual validity (exploratory and confirmatory factors analysis), and 3. Convergent validity. First, the content validity of the Drive for Muscularity Attitudes Questionnaire was obtained through a questionnaire from a survey among the experts and psychologists and the consistency of the questions with the concepts and theory of muscle mass, which was confirmed. Then the factor analysis (exploratory and confirmatory) was carried out.

**Factor analysis**

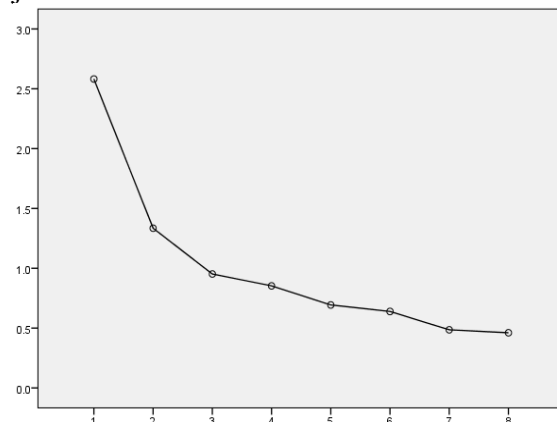
Exploratory factor analysis: In evaluating construct validity, two internal correlation methods of each factor with a total score of the questionnaire and exploratory and confirmatory factor analysis were used. In the factor analysis, a Kaiser-Meyer-Olkin Measure of sampling Adequacy (KMO) is used to ensure the sufficient sample size. To ensure that the correlation between the questionnaire materials in the society is not zero, Bartlett of sphericity was used. In

addition, Total Variance Explained is presented in Table 3.

**Table 3.** Result of Kaiser-Meyer-Olkin (KMO)

Index	
KMO	75.0
Bartlett of sphericity	300.53
DF	28
Sig	0.001

The calculations in Table 3 show that the determinant of the correlation matrix is not zero, which suggests that it is possible to calculate the reverse matrix and thus to extract the factors. For the correlation matrix, the Drive for Muscularity Attitudes, KMO= 0.75 and the characteristic value of Bartlett of sphericity test is significant at the level of 0.0001 ( $X^2= 300.53$ ). Therefore, it can be concluded that based on the correlation matrix observed in the sample, the implementation of the factor analysis is justifiable.



**Figure 1.** Scree plot and Eigen value

Figure 1, also shows the scree plotted verified factors. The main component of the Drive for Muscularity Attitudes questionnaire shows that all the 8 phrases have a factor load higher than 0.3 and the common variance of variables for this factor is 32.72 of the total variance, and all of these questions yielded an appropriate factor on a load factor. The results of the confirmatory factor analysis of the scale are presented in Table 4.

**Table 4.** Standardized Coefficients for Drive for Muscularity Attitudes Questionnaire Items (DMAQ)

Item	Standardized coefficient
I do not want to become more muscular*	0.63
I wish my legs were more muscular	0.66
When I see a guy who is really muscular, it inspires me to get bigger myself	0.40
Muscularity is important to me	0.56
I think I need to gain a few pounds of “bulk” (muscle mass)	0.57
I do not wish my arms were more muscular*	0.46
I should work out more to increase muscle mass	0.68
I would feel more confident if my lats (back muscles) were bigger	0.57

\* Item was reverse-scored.

Table 4 shows the factor load of each question for each factor that the factors load higher than 0.3 is appropriate. As it is observed, the indexed questions have factor load of higher than 0.3 in their related factors.

Confirmatory Factor Analysis: To evaluate the data fitting, the general examined fitting indexes and the results are presented in Table 5. Using the indices, one can answer the question that, regardless of whether each

reported value for the parameters or the provided model is generally supported by the collected data or not? Considering the proposed grouping of general fitting indexes in three groups, absolute, comparative, and Parsimonious indices can be mentioned. Initially, the reporting of the chi-square and the associated values in the category of comparative indexes can provide the researcher a relatively in-depth overall view.

**Table 5.** General fitting indicators model

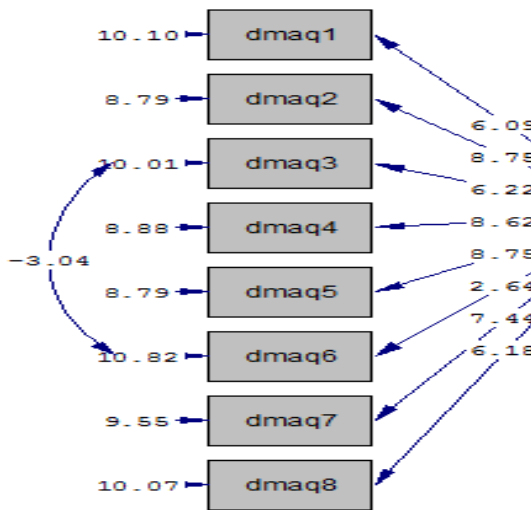
Index	Model	Sig	Result
Absolute fit index	chi-squares ( $X^2$ )	$P < 0.05$	56.05
	chi-squares/ freedom( $X^2/df$ )	$< 3$	13.96
	(NNFI) Non-Normed Fit Index	$> 0.9$	0.93
	(TLI) Tucker-Lewis Index	$> 0.9$	0.94
Comparative Fit Index	Comparative Fit Index (CFI)	$> 0.9$	0.91
	(NFI) Normed Fit Index	$> 0.9$	0.93
	Relative Fit Index (RFI)	$> 0.9$	0.80
	Parsimonious Normed Fit Index(PNFI)	$> 0.5$	0.59
Parsimonious Fit Index	Parsimonious Comparative Fit Index(PCFI)	$> 0.5$	0.73
	Root Mean Squared Error of Approximation (RMSEA)	$< 0.05$	0.09

Since  $X^2$  is the sample size function, when the sample group size is 75 to 200, the chi-square value is a reasonable amount of fitting. However, for models with larger sample sizes, chi-square is almost always statistically significant. Therefore, to fit the model other sizes were provided. These

sizes are fitting indicators, which are based on chi-squares, while they are controlled by sample size. Thus, many scholars examine chi-squares for the degree of freedom (relative chi-squares) and use it as a thumb index of fitting goodness. The  $X^2$  observed in the following table is statistically

significant. Therefore, it can be concluded that the chi-square test rejects the exact fitting of the model with the observed data. Investigating the comparative indices after the absolute fitting indices are the second step to evaluate the appropriateness of the model. These indicators take values between 0 and 1 and values greater than 0.90 are interpreted in most sources as acceptable values [23]. On this basis, it can be stated that the Non-Normalized Fit Index (NNFI) of 0.93, Tucker-Lewis Index (TLI) of 0.94, Comparative Fit Index (CFI) of 0.91, Compared Normed Fit Index (NFI) of 0.93 and Relative Fit Index (RFI) of 0.80 indicate that the model is acceptable. After examining the absolute and comparative fitting indices, investigating the Thrifty

Indices is another step that needs to be conducted. Thrifty Ratio Index indicates that how much the researcher made the parameters free. The Parsimonious Normed Fit Index (PNFI) of 0.59 and the Comparative Fitting Index (PCFI) of 0.73, both show acceptable values since values higher than 0.5 are considered as the acceptable values for these two values (23). Finally, the Root Mean Squared Error of Approximation (RMSEA) as one of the most common indicators used in the overall judgment of the modified models is 0.90. Since the values between 0.05 to 0.10 are considered as the moderate fitting (23), the developed model is acceptable at this moderate level.



Chi-Square=56.05, df=19, P-value

Figure 2. Final Measurement Model of Drive for Muscularity Attitudes Questionnaire

To assess the convergent validity in this study, Drive for Muscularity Attitudes questionnaires, Dependency on Exercise and

Mindfulness questionnaires were used that are presented in the following table.

Table 6. Correlation of Drive for Muscularity Attitudes with Drive for Muscularity, Exercise Dependence and sport mindfulness

Variables	1	2	3	4
1. Drive for Muscularity Attitude	1	0.285*	0.201*	-0.126*
2. Drive for muscularity	0.285*	1	0.457*	-0.321*
3. Exercise dependence	0.201*	0.457*	1	-0.411*
4. Sport mindfulness	-0.126*	-0.321*	-0.411*	1

As shown in Table 6, there is positive and significant correlation between the drive for muscularity attitudes with a drive for

muscularity and the degree of dependence on exercise Moreover, there is a negative and significant correlation between the drive



for muscularity attitude with the level of sports mindfulness with their subscales (judgments, self-awareness, acceptance), indicating the convergent and divergent validity of this instrument.

In the internal consistency process, the high correlations indicate the alignment of the

### **Discussion**

The purpose of the present study was to determine the psychometric properties of the Drive for Muscularity Attitudes Questionnaire among different levels of athletes of different disciplines. According to the results of exploratory factor analysis, the 8-item questionnaire of a drive for muscle mass attitude with a factor explained 32.27 of the variance of the total questions. In the second step, confirmation factor analysis was used to confirm the single-factor model discovered by the exploratory factor analysis model. The results based on the indices showed that the model was one-factor. In general, the research indicators are similar to the original version of the Morrison et al. questionnaire (17), which were validated in three studies on male and female athletes, and confirm the validity and reliability of the Drive for Muscle Mass Attitude Questionnaire.

The attitude to have muscle mass in a variety of team and individual sports was created significant concerns among trainers and athletes, since continuous and obsessive behaviors of athletes to achieve ideal body gesture cause a variety of eating disorders and problems in the perception of body image (35-38). In this regard, Molodi et al. (27) also showed that there is a positive correlation between body gesture and weight concerns, eating and over-eating behaviors with attitudes toward muscularity and behaviors related to muscularity. The findings of the study Blaydon et al. (39), and Zmijewski and Howard study (40) sharply confirm these results. Considering the nature of the exercise and the desire to have muscle

factors with the total score of the questionnaire. The Cronbach's alpha coefficients for the whole scale are 0.67, which has an acceptable internal consistency.

mass in order to promote social acceptability and self-esteem, most athletes are at risk of developing this condition, since they consider the higher muscle mass as the success (41). From the perspective of many scholars, the main reason for this underlying tendency to increase muscle mass is that today, being athletic is considered as increased muscle mass and beauty of the body (42). The results of this study are consistent with other psychometric findings of this questionnaire found by Morrison and Harriman (18), Tod et al. (13) Ryan and Morrison (19), in terms of the desirable construct validity and the single-factor model.

The reliability of the Drive for Muscularity Attitude Questionnaire was obtained as 0.67 and 0.68, respectively, using Cronbach's alpha and paired-odd method which shows the satisfactory reliability of this questionnaire in the Iranian athletes' population. Morrison et al. reported a reliability of 0.84 for Drive for Muscularity Attitude Questionnaire through internal consistency approach. Moreover, Morrison and Harriman (18) also reported the Cronbach's alpha of 0.822 investigating the reliability of the questionnaire among male students, which shows satisfactory reliability. Furthermore, in similar studies, Tod et al. (13) and Ryan and Morrison (19) all mentioned the desirable reliability of this questionnaire, which is consistent with the results of the present study.

The findings related to the convergent and divergent validity showed that the Drive for Muscularity Attitude questionnaire has a positive and significant relationship with

drive for muscularity, and Exercise Dependency, moreover has a negative correlation with sports mindfulness scale. The results of this study suggest that drive for muscularity attitudes and drive for muscularity (18) are in the same direction. Hence, people who develop self-consciousness attitudes toward muscularity are more likely to act in behavioral patterns such as muscularity (19), doping (10), and excessive exercise (43), which suggests their self-awareness, acceptance and non-judgment (mindfulness) regarding their athletic performance in sports fields. This confirms the results of many scholars who mentioned the positive relationship between attitudes and drive muscularity with the Exercise Dependence (44,45). Moreover, the result of Molodi et al. in Iran (27), confirms these results. Increasing muscle mass often leads to a decent social acceptance (17) for an athlete that creates this mental activity in athletes who focus their bodies' gestures more sensitively than ordinary people and compare themselves continually with the desired criteria. This develops drive for muscularity attitudes in the athlete.

The present study is a continuation of psychometric evaluations of the Drive for Muscularity Attitudes Questionnaire (13,17,18) in assessing the validity and reliability of the questionnaire in various cultures. In general, in this study, the early finding of the psychometric properties of the Drive for Muscularity Attitudes Questionnaire suggests the utility of this questionnaire in Iranian athlete's population. It seems that this instrument can provide scholars and researchers the ability to validate knowledge of athletic tendencies toward muscularity.

Since no research is free of limitations, the present study is not an exception. Therefore,

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among the limitations of this study, we can mention the spatial and temporal restrictions of the study. Since this study was carried out among athletes in Tehran, therefore, its generalizations to the athletes of other cities should be conducted more cautiously. Accordingly, it is suggested to conduct further studies on the psychometric properties of the Drive for Muscularity Attitudes Questionnaire to confirm the accuracy of the results. Moreover, evaluating the validity of the scores obtained from this instrument as an instrument for detecting the sensitivity of the work could be another axis of the appropriate research in this regard. Finally, it is suggested to investigate the relationship between the drive for a muscularity attitude with different variables in the sports fields so achieve coherent knowledge regarding the relationship of this construct with another construct, which has more capability in the relevant intervention planning.

### **Conclusion**

Considering the ease of implementation with fewer points, scoring, interpretation and explanation, feasibility, and reliability and validity of the pre-mentioned questionnaire compared the other similar instruments, it is concluded that this is an optimal instrument for measuring the attitude of athletes to muscularity; moreover, it can play an appropriate role in screening.

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