

Motivational differences between athletes at junior and senior level: An analysis of the football, handball, and water polo players

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ABSTRACT

Research in sport and exercise psychology indicates that motivational factors contribute to exceptional achievement, both in individual and team sports. Therefore, analysing differences between junior and senior athletes in contact ball sports in terms of their motivational differences may be an important information source for the selection process and management of the development of the elite athletes. In this study data on athletes' motivation was collected via self-assessments. Data was analysed in order to answer the questions regarding the motivational differences of athletes, which might be related to the type of collective ball sport and their competing level related to age. Sample consisted of 316 athletes at junior and 286 athletes at senior level, which were active in one of the three team sports: football, handball, and water polo. They filled in three self-report questionnaires: Self-motivation Inventory – SMI; Sport Attitudes Inventory – SAI; and Task and ego orientation in sport questionnaire - TEOSQ. Results suggest that senior athletes have higher score on self-motivation, motive to achieve power and task goal orientation scales than junior athletes. These findings were replicated in all three sports which were analysed. Besides that, football players have the highest motive to achieve success, motive to achieve power and task goal orientation; water polo players have the most pronounced self-motivation, while handball players show lowest levels of these motives.

Keywords: Motivation; Sport; Football; Handball; Water polo; Junior; Senior.

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INTRODUCTION

Individual and team performance, as well as the success and failure in sport, are related to broad and specific personality traits, motivation, sport-specific abilities, level of skills, the whole training process, the level of preparedness, sports form and coach's leadership behaviour, etc. (Barić, Cecić Erpič, & Babić, 2002; Tušak, Misja, & Vičić, 2003; Trninić, Trninić, & Papić, 2009; Weinberg & Gould, 2011; Cox, 2012). Furthermore, expert knowledge and experience of professionals and sport psychologists suggest that a successful transition from young players to senior selection is related to the degree of athlete's maturity, and not just his abilities and skills (Trninić, Trninić, & Penezić, 2016). One of the key elements in the successful transition from the junior to senior level of competition in sport certainly includes the athlete's motivation. Ryan and Deci (2000, p. 69) suggest that „*motivation concerns energy, direction, persistence and equifinality - all aspects of activation and intention*“. In the intrapsychic domain „*motives can be used to explain why people do what they do. Motive explanations are unique in that they imply a goal that pulls people to think, act, and feel in certain ways*“ (Larsen & Buss, 2014, p. 359). Furthermore, Winter et al. (1998) suggest that the motivational approach can be thought of as a midpoint between the intrapsychic domain and dispositional domain. However, there are many perspectives on the mere nature of motivation. According to one view, the hypothetical construct that we call motivation can be viewed as one of the regulators of direction and intensity of behaviour (Roberts, 1992; Weinberg & Gould, 2011). Furthermore, athlete's motives may vary in type and intensity of the process of sports training that reflects the performance and sports achievement. Also, situational factors, e.g. motivational climate (for example, the coach's leadership behaviour) can support and nurture, but also neglect and harm the motivation of athletes, the quality of performance and sports achievement. Sport and exercise psychologists can view motivation from several specific vantage points, including achievement motivation, motivation in the form of competitive stress, and intrinsic and extrinsic motivation (Weinberg & Gould, 2011). Roberts (1992) suggests that motivation is less understood in sport than in any other life activities. Motivation in sport develops under the influence of two groups of factors: situational and dispositional (Roberts, 1992; Roberts, Caspi, & Moffitt, 2001; Duda & Hall, 2001; Barić, 2004; Papaioannou, Marsh, & Theodorakis, 2004). Athletic and motivational literature suggests that excelled athletes have an intense internal desire to work hard and to achieve success (Cox, 2012).

The present study

Athletes' motivation data was collected via self-assessments. This data provides the basis for answering to proposed research questions dealing with motivation differences of athletes, which might be related to the type of collective ball sport, and the level on which the athletes are competing. Since our hypotheses are derived from the scientific problems described in the previous section, they will be formulated as a plausible explanation for these problems. By using a differential approach, in this research we try to provide answers to the three research problems. Regarding the first research problem we try to answer are there any motivational differences between athletes in different collective ball sports? Therefore, we formulated a null-hypothesis due to ambiguous empirical findings, and the hypothesis was that there are no differences in motivation of athletes in different team sports. According to the second research problem we try to answer are there motivational difference between young and senior athletes? Considering the empirical findings, we formulated the hypothesis that differences in motivational factors between young and senior players are expected. Senior players will have a stronger self-motivation, while young players will have stronger ego-orientation. Besides that, we will test a possibility of significant interaction of the type of sport and the young/senior level. However, we do not expect significant interactions, so we stay at the null-hypothesis there.

METHOD

Participants

The initial sample included 630 athletes which were active in one of the three team sports, all training and playing in Croatia. Players who did not fill in the questionnaires as instructed (e.g., those who gave more than one answer on some items, who did not respond to a large number of items, or who gave the same answer to all items) were excluded from the study ($N = 28$), so final sample consisted of 602 athletes. The athletes were football, handball and water polo players from 28 clubs (in 14 Croatian counties: $N_{\text{football}} = 176$, $N_{\text{handball}} = 247$, $N_{\text{water polo}} = 179$). Participants were divided into two groups according to the level in which they are competing: 316 junior players (age 15-18, $M_{\text{age}} = 16.88$, $SD = 0.96$) and 286 senior players (age 19-35, $M_{\text{age}} = 24.26$, $SD = 4.11$). In defining the sample characteristics, we have tried to satisfy the following conditions: i) junior players are those from the highest level of national sport leagues, age 15-18; ii) senior players are those from the first division selections of the highest level in national sports championships (age 19-35).

Measures

Athletes' motivation was measured via self-report questionnaires. Following instruments were used in this study.

Self-motivation Inventory - SMI

SMI (Dishman, Ickes, & Morgan, 1980) is a 40-item questionnaire measuring self-motivation, i.e. athlete's intrinsic motivation. Participants respond on a 5-degree Likert scale (from 1 = extremely uncharacteristic of me to 5 = extremely characteristic of me). The final result is scored as the sum of responses. Previous studies indicate good reliability of this scale (see Dishman, Ickes and Morgan (1980). The Cronbach alpha obtained in this study was .90.

Sport Attitudes Inventory - SAI

SAI (Willis, 1982) is a 40-item scale designed to measure three achievement motives specific for sport: motive to achieve success - MAS (17 items), motive to avoid failure - MAF (11 items) and power motive - MAP (12 items). Participants respond on a 5-degree Likert scale (from 1 = strongly disagree to 5 = strongly agree). The scales have good psychometric properties (Willis, 1982, Tiryaki and Gödelek (1997). Cronbach's alpha coefficients obtained in this study were .77, .79, and .71 for the MAS, MAF, and MAP scales, respectively.

Task and ego orientation in sport questionnaire - TEOSQ

TEOSQ (Duda, 1989) is a 13-item instrument. It contains two independent subscales tapping two different goal orientations. *Task* subscale contains 7 items and *ego* subscale contains 6 items. Participants respond on a 5-degree Likert scale (from 1 = strongly disagree to 5 = strongly agree). Previous studies, e.g. Duda (1989); Boyd and Callaghan (1994)) found a stable factor structure and high internal consistency of this instrument. The Cronbach alpha coefficients in this study were .84 for ego orientation and .85 for *task* orientation scales.

Data analysis

Preliminary analysis of the data set was performed in order to examine distributions and factor structure of the used instruments. As expected, the SMI inventory had one factor structure and only three items have factor loadings lower than .30. SAI and TEOSQ had, respectively, three factor structures, also in accordance with expectations. K-S test showed that distribution of the scale scores didn't differ from the hypothetical Gaussian distributions and all skewness and kurtosis indices were low, ranging from .02 to -.82. Therefore, the assumptions for using the parametric statistical test were fully fulfilled. The hypotheses were tested using

the factorial 2x3 ANOVA design with the competition level and type of the sport as fixed factors, as well as their interaction. Bonferroni post-hoc test was used for multiple group comparisons when that was necessary.

RESULTS

The results of the hypothesis testing are presented in a Table 1.

Table 1. Results of the two-way ANOVA for motivational differences depending on the competing level and type of sport.

Motivational factor	Competing level (C)			Type of the sport (TS)			C x TS interaction	
	Junior level (N=316)	Senior level (N=286)	F	Football players (N=176)	Handball players (N=247)	Water polo players (N=179)	F	F
	M (SD)	M (SD)		M (SD)	M (SD)	M (SD)		
Self-motivation	145.54 (18.79)	153.13 (19.70)	23.63**	151.39 (17.79)	145.67 (20.53)	151.73 (19.30)	6.87**	0.95
Motive to achieve success	66.13 (8.20)	65.63 (7.40)	.25	68.10 (6.76)	64.85 (8.07)	65.15 (8.07)	10.28**	0.22
Motive to avoid failure	32.90 (7.28)	33.94 (7.41)	3.48	33.97 (6.82)	32.64 (7.45)	33.87 (7.67)	2.36	0.81
Motive to achieve power	42.50 (5.69)	45.42 (5.14)	40.09**	44.54 (4.99)	43.10 (5.99)	44.34 (5.58)	4.11*	0.77
Task goal orientation	29.72 (4.31)	30.41 (3.92)	4.10*	30.60 (3.57)	29.37 (4.65)	30.44 (3.78)	5.65**	0.10
Ego goal orientation	20.59 (5.05)	19.99 (5.58)	2.85	20.72 (5.42)	19.93 (5.31)	20.41 (5.21)	0.99	1.96

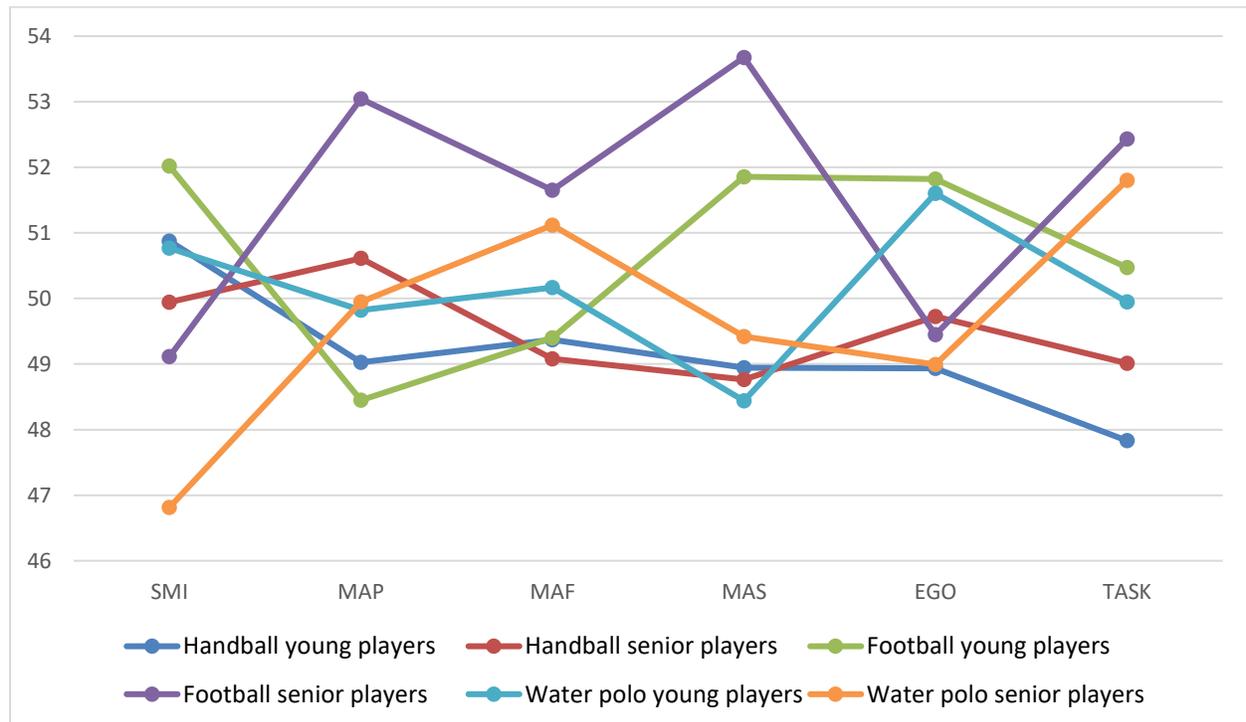
Legend: M - Mean; SD - Standard Deviation; F - F-test. ** $p < .01$; * $p < .05$.

The main effect of the competing level was significant for three scales: Self-motivation ($F = 23.63$; $p = .000$), Motive to achieve power ($F = 40.09$; $p = .000$), and Task goal orientation ($F = 4.10$; $p = .043$), respectively. In all cases the higher scores for the senior athletes were obtained. Therefore, the hypothesis regarding the higher scores of the senior players on the self-motivational scale was confirmed. Additionally, the differences in a same direction for the Motive to achieve power and the Task goal orientation were also found, and these differences were not predicted. Also, the hypothesis about the higher scores of the young players on the Ego goal orientation scale was also not confirmed.

A significant main effect of the sport type was found for the Self-motivation ($F = 6.87$; $p = .001$), Motive to achieve success ($F = 10.28$; $p = .000$), Motive to achieve power ($F = 4.11$; $p = .044$), and Task goal orientation ($F = 5.65$; $p = .004$), respectively. Bonferroni post-hoc procedure indicates that significant main effect is attributable to the differences between the following groups: i) handball players obtained lower scores than football and water polo players at Self-motivation, Motive to achieve power, and Task goal orientation scales; ii) football players obtained higher scores than other two groups on the Motive to achieve success scale.

Obviously, in cases where the main of type of the sport were found, the higher scores on motivational variables was obtained for football players, while the lower scores were obtained for handball players. The motivational profiles for the six groups based on the type of the sport and competition level is presented in the Figure 1.

All interaction effects were non-significant so we cannot reject the null-hypothesis which was postulated. The trends regarding the motive profiles for the six groups were presented in a Figure 1.



Legend: SMI - Self-motivation; MAP - Motive to achieve power; MAF - Motive to avoid failure; MAS - Motive to achieve success; EGO - Ego goal orientation; TASK - Task goal orientation.

Figure 1. Profiles of motivational factors in young and senior athletes in football, handball and water polo.

DISCUSSION

Athletes are guided by a number of motivational resources when participating in sports activities (Horga, 2009). Therefore, this study employed different theoretical concepts to explain the differences between young and senior athlete’s players who are active in three sports.

Results have shown no differences in motives to avoid failures and ego goal orientation, both regarding the competing level and type of sport, and also no significant interaction. Significant differences were found in self-motivation, motive to achieve power and task goal orientation. Furthermore, a significant difference was found in the motive to achieve success between football, handball and water polo players. However, no significant interactions were found in any of the motives investigated.

A significant difference was found between three groups of players in self-motivation. Highest level of self-motivation was found in water polo and football players, while the lowest level of self-motivation was found

in handball players. Our results have confirmed the expected differences between young and senior players in self-motivation. It seems that senior players are more internally motivated, enjoy the game intrinsically and have lower expectations regarding motivation from the external environment. This finding is similar to the findings found in the literature which suggest that elite athletes score much higher in self-motivation in comparison to young athletes (Tušak, 1997). Besides that, self-motivation seems to become more important after adolescence and tends to increase with age (Weinberg et al., 2000; Mallett & Hanrahan, 2004). Generally, self-motivation reflects athlete's intrinsic motivation. It is a process of motivating one's self, it includes inner urges, and it is a prerequisite for further personality development and achievement in sport (Tušak, 1997; Alispahić, 2013). It seems that, in comparison to young players, seniors feel more competent and self-determined in performing tasks and they express their intrinsic motivation which stems from their need for competency and autonomy. Senior players marked by high level of self-motivation prepare and motivate themselves, and they work independently, with no external support or "pressure". Furthermore, high level of self-motivation is one of the prerequisites of a successful process of external motivation. Coach's approach to motivating the players will achieve long-term success only if players have high levels of self-motivation featured by self-discipline in training, even when the coach is not supervising the training (Tušak, 1997). Tušak (1997) suggests that self-motivation in seniors indicated their higher self-discipline, compared to young players. It seems that athletic socialization over the years leads to higher levels of self-discipline, increase in persistence in performing difficult tasks, as well as players' independence. It is also possible that self-motivation has an important role in the process of selection during the transition from the junior to senior level, meaning that only motivated players continued their engagement in a sport activity.

Findings suggest that there are differences in the motive to achieve success with regard to sport and that the behaviour directed at achievement is most prominent in football players. The differences in the motive to achieve success, in terms of age, have not been confirmed, which is in agreement with the results obtained by Tušak (1997). These results suggest that young players do not significantly differ from senior players in the motive to achieve success. We can say that the motive to achieve success is dependent of the type of sport, regardless of age, i.e. the level of involvement in sports (youth and senior athletes). Furthermore, football players show higher motive to achieve power in comparison to water polo and handball players, indicating that senior football players adopt goals defined by their performance. We believe that in football there is an intense competition between players and clubs within the elite levels of competition. Also, football is the sport most followed by the media, and consequently there exists an expressed motivational force manifested in the pursuit of success and the achievement of goals. Probably football players have the most expressed motive to achieve success because they are the most financially rewarded.

Our empirical findings indicate that there is no significant difference in the motive for avoiding failure, or negative motivation, regarding the competing level and the type of sport. However, there is a tendency of such difference with respect to age ($p < .07$). Specifically, in senior athletes higher scores are found on the motive of avoiding failure, which is probably due to personal professional fear of failure or due to prevention of negative or undesirable outcomes. We believe that, in comparison to seniors, young players' lower levels of motive to avoid failure might be due to their lower score imperative, less media and environmental pressures and lower financial and existential burden. Competitions below senior level generate less concern and pressure, and thus avoiding behaviour is less expressed at this level of competition.

The motive to avoid failure (i.e. to avoid fear of failure) directs athletes towards avoiding performance (for example, not taking the responsibility for final action). Thus, athletes with higher motive to avoid failure achieve lower results than is expected on the basis of their potential and possibilities. They are not prone to taking the initiative and responsibility. It seems that fear of failure and avoidance of performance indicate the

tendency of avoiding emotions and cognitions, and therefore represents one less adaptive style of coping with training and competition stress.

Motive to achieve power is most pronounced in football players, and it is more pronounced in senior athletes. It seems that the need for dominance/power is related to the need for influencing and controlling other and it, therefore, plays a role in competitive sport. It is likely that pronounced motive to achieve power and motive to achieve success is in football players related to their reputation or status. Since the motive to achieve success, as well as the motive to achieve power, is most pronounced in football players, they try to achieve dominance in performance to ensure competitive success. These two motives are most pronounced in football players probably due to the global popularity of this sport and the need for achievement in the most competitive ball sport in the world.

We assume that the stronger motive to achieve power in senior players, as opposed to junior players, is the consequence of the selection process and the system of training in collective ball sport. Dabbs (2000) states that a system of training that encourages physical aggressiveness and competitiveness leads to increased levels of testosterone, while Cervone and Pervin (2008) indicate that studies indicate mutual influence of testosterone, dominance and aggression. It seems that senior athletes, in comparison to young, have more pronounced aggressive impulses. Athletes with the expressed motive for achieving power are more likely to influence their teammates, which is extremely important in senior sport. The reason for this is that the need to achieve domination, as well as the need to achieve success are energizing and they direct behaviour of athletes in a competitive context.

The task goal orientation is a motivational factor that is significantly higher in athletes at the senior level than in young athletes. Findings suggest that senior level athletes have pronounced orientation to learning (knowledge and mastering) which may be associated with a healthy perfectionism and cognitive maturity of the individual. Senior athletes with an expressed task orientation are focused on acquiring specific skills, developing sport-specific abilities and on the improvement of performance. They believe that continuity of progression is a vital for success in senior sport. Senior athletes are aware of the importance of hard work in achieving efficient performance and sports achievement (Tušak, 1997). Assumingly, in professional sports task goal orientation is developing and changing under the influence of situational factors (e.g. task motivational climate and coach's leadership behaviour). It seems that the senior athletes are not only persistent in learning and focused on mastering tasks, but they are also more oriented to understanding the importance of efficient performance and to increase the level of understanding of the game. Therefore, senior athletes give up harder and they attribute their success to their efforts. It seems that the precondition for development of the task goal orientation is the cognitive maturity, more prominent in senior than young athletes, which partly explains the focus, intensity and persistence of their behaviour. It must be remembered that there is a reciprocal relationship between cognitive maturity and task goal orientation, or that there is a never-ending and the mutual influence of these variables on each other.

Task goal orientation contributes to intrinsic motivation (Tušak, 1997; Barić, 2007). Dispositional task goal orientation contributes to self-motivation and it is the most important factor in the development of intrinsic motivation. This suggests the interrelation of task orientation and self-motivation. Accordingly, Tušak (1997) found a positive correlation of self-motivation and task goal orientation (.37).

No significant differences were found in the ego goal orientation, regardless of the competing level and the type of sport. However, there is a tendency ($p = .10$) to a greater degree of ego goal orientation in young athletes. Also, a number of other studies suggest a stronger ego goal orientation in young athletes (White &

Duda, 1994; Duda et al., 1995; Tušak, 1997; Cetinić, 2004). The findings of this research show that the motivational climate in young athletes is highly competitive already in the process of sports training, and in the long run it probably results in their slower advancement. It seems that contextual factors (parents, coaches, teachers, peers) initiate pronounced ego goal orientation in young athletes. Accordingly, Malina (2010) suggests that parents often initiated a motivational climate focused on the result, which results in comparisons to others and can lead to an early burnout, as well as the termination of sports.

LIMITATIONS AND CONCLUSIONS

Presented study, of course, has some limitations. One of those limitations is related to the data collection method which is in this study based exclusively on the self-assessment measures. Although self-report questionnaires provide useful information for researchers, sport psychologists and expert coaches, it is reasonable to assume that situation-specific measures (e.g. sport-specific measures) may be useful as well and could predict athlete's behaviour more reliably in the achievement context. Secondly, this study employs cross-sectional design in which competition level is confounded with the age. Therefore, the motivational differences between junior and senior athletes which were obtained may reflect general developmental trajectories, as well as the results of a selection (or self-selection) process in which only motivated individuals continues with sports activities. Thus, the longitudinal design would be very welcomed in future research. Besides that, in future research it would be useful to: i) construct new instruments to measure specific motivational dimensions of the top athletes in the collective ball sports. These sports are likely to affect the functioning of athlete's personalities, individual and team performance, as well as the sport achievement; ii) investigate predictive validity of motivational dimensions determining success in collective ball sports; iii) monitor and evaluate outcomes of a multi-year training process (e.g. changes in motivational structure of athletes).

However, we think that reported study may lead to the several important conclusions. Results indicate that football, handball and water polo players differ significantly in self-motivation, motive to achieve success, motive for achieving power and task goal orientation. Football players show the highest degree of motive to achieve success, motive to achieve power and task goal orientation. Water polo players show highest self-motivation, while handball players show lowest levels of these motives. Furthermore, the results of this study suggest a possible effect of a specific collective sport on the formation of motivation of athletes. Also, it seems that the expression of individual motivational factors changes throughout an athlete's career. In comparison to junior players, senior players show more pronounced self-motivation, motivation to achieve power and task goal orientation. A tendency towards ego goal orientation can be seen in young players. Accordingly, the results suggest differences in motivational tendencies of young and senior athletes. It seems that senior players show somewhat preferable motivational pattern in comparison to young players. No significant interactions of competing level and type of sport were found, indicating relatively similar developmental trends in motivation of football, handball and water polo players.

AUTHOR CONTRIBUTIONS

Denis Bratko: Writing the manuscript, study design, and data analysis. Viktorija Trninić: Writing the manuscript, study design, and data collection. Marko Trninić: Data analysis.

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