SCIENTIFIC JOURNAL OF SPORT AND PERFORMANCE

ORIGINAL ARTICLE

The impact of sport-specific achievement and affiliation motives on young athletes' dropout and persistence in elite sports

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ABSTRACT

This study aims to compare the sport specific achievement and affiliation motive structures of athletes who later decide to dropout or continue their elite sports career. In addition, groups of athletes were analyzed separately according to age, gender and type of sport in order to identify possible group differences. 146 young elite athletes were analyzed (64 girls, 82 boys, mean age: 13.55, SD = 1.14) and self reported about their motive structure. The data were collected using the German Achievement Motive Scale-Sport and the German Affiliation Motive Scale Sport. Significant differences were found between the athletes who dropped out from junior elite sports and athletes who continued in the fear of failure of the achievement motive. The analysis of gender differences shows that female athletes generally exhibited significantly higher levels of fear motives. We found no differences between female athletes who continue and discontinue the sport career. The male athletes who dropped out showed a higher level of the hope of affiliation und fear of rejection. When comparing the different age groups, it was found in the older age groups that the fear to fail motives differs significantly between the adherence and the dropout group. The results indicate that the fear of failure represents an unfavourable motivation profile for a long-term sporting career. Considering that the motivational structure has an impact on continuing a sports career the motivational profile has to be diagnosed at an early stage and then tackled accordingly in order to avoid an early dropout.

Keywords: Physical activity psychology, Achievement motivation, Elite sports.

Cite this article as:
Schröder, S., & Knisel, E. (2024). The impact of sport-specific achievement and affiliation motives on young athletes' dropout and persistence in elite sports. *Scientific Journal of Sport and Performance*, *3*(4), 471-484. https://doi.org/10.55860/GLQC1549

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Submitted for publication May 03, 2024.
Accepted for publication June 28, 2024.
Published July 19, 2024.
Scientific Journal of Sport and Performance. ISSN 2794-0586.

doi: https://doi.org/10.55860/GLQC1549

INTRODUCTION

Exact data on the dropout rates of children and young people in competitive sports are difficult to determine, as these largely depend on the sports, the financial and material support and the infrastructure, and the education system in the respective country. However, a high dropout rate in adolescent age has been observed in many studies. For example, a study of Železnik and Škof (2020) reported that 85% of young Slovenian athletes drop athletics on their way to senior age, independent of the athletic discipline. Møllerløkken, Lorås and Pedersen (2015) described that about 25% of adolescents aged between 10 and 18 years drop out of soccer annually. Even higher was the dropout rate of young soccer players in Turkey with 50.6% in the 2016-2017 season (Dut, Bayraktar & Acikada, 2019). In a longitudinal study of German swimmers Staub, Zinner, Stallmann and Vogt (2019) found that only 33% of those ranked among the best top 100 at the age of 11 were also ranked in the top 110 at the age of 18.

Given the potential adverse consequences of dropout from elite sport in childhood and adolescence there is still a need to gain more knowledge about the factors influencing dropout to develop preventive strategies and to create environments supporting the adherence to elite sport in young age (Back et al., 2022). Several systematic reviews synthesizing the research on factors influencing dropout from elite sport in young age in different sports have been published. In a review of nine studies Múrcia Corrales and Olaya-Cuartero (2022) concluded that a close environment and a good relationship with the trainer are key factors to avoid dropout in endurance sports. Another systematic review of Monteiro et al. (2017) including children and adolescent athletes revealed that conflicts with trainers, 'other things to do', competence improvements failure, parents or trainers' pressure, lack of enjoyment, and 'get bored' are determinants for dropout in swimming. Moulds, Galloway, Abbott and Cobley (2022) reported in their systematic review that relative age, sex, competence perception, parental socio-demographics, and conflicts with other activities are factors frequently identified as influential to dropout.

Retrospective interviews with Greek athletes in basketball, football and swimming exposed that dropout from elite sports is a process ascribed to a combination of different factors (Andronikos, Westbury & Martindale, 2019). These factors include early success and win focus environment, poor communication and inappropriate support, and balancing a dual career without support or with excessive pressure. A similar study by Thomas et al. (2021) with former Caribbean junior elite track and field athletes also shows that a combination of factors as not enough support and the pressure and competitive atmosphere had an impact on dropout although inadequate financial and organizational support influenced their decision to drop out.

To sum up research in this area revealing that physiological, psychological, social and environmental factors influencing young athletes' dropout. However, a small number of studies focus explicitly on examining the impact of psychological factors like motives and motivational processes on dropout in junior elite sports. Isoard-Gautheur, Guillet-Descas and Gustafsson (2016, p.128) concluded in their study in elite handball training centres in France that *"(…) sport dropout is linked to a negative motivational state (i.e., athlete burnout)" and they suggest "(…) to monitor athletes over the course of their careers for burnout level and other potential predictors of sport dropout, such as motivational regulation*". Baron-Thiene and Alfermann (2015) found in their study of German athletes from different sports that achievement motivation plays an important role for the continuation of a sports career. The same results were reported by Soares et. al. (2020) in their study of young Brazilian basketball players. Especially the link between motivational processes in the context of self-determination theory had inspired studies in the area of sport dropout (Balish et al., 2014; Elsborg et al., 2023). These studies revealed that motivational determinants appear to be essential to

understand persistence and dropout in young elite sport. Nevertheless, Monteiro et al. (2017) found in their review that little is known about young dropouts' motivational determinants.

Even if some authors argue that a high level of achievement motivation is important to continue a sports career successfully (Gould et. al., 2002) a current review of Back et al. (2022) regarding adolescents' dropout from team sports shows no statistically significant influence of achievement motivation on the risk of dropping out. Consequently, further research is necessary to study the impact of psychological factors as achievement motives on dropout in junior elite sports. Our study accessed motives of dropout in junior elite sport.

The aim of our study is to investigate the impact of young athletes' sport-specific achievement motives and affiliation motives on the dropout and persistence in elite sports. According to the risk-choice model (Atkinson, 1957), it is assumed that differences in the sport-specific achievement motive are primarily due to differently pronounced "*hope for success*" and "*fear of failure*" motives. We expect that young athletes who continue their sports career differ in the two components. Furthermore, we expect differences between dropouts and athletes who continue their sports career in the sport-specific affiliation motive with the components of hope for affiliation and fear of rejection.

Since a strong increase in the dropout rate at junior elite level can be observed particularly among female athletes (Baron-Thiene & Alfermann, 2015; Granz et al., 2019; Múrcia Corrales & Olaya-Cuartero, 2022) the study examines, if there are gender-specific differences in the motive structure of athletes continuing and discontinuing their sports career. Research reveals that more young athletes from individual sports drop out from elite sports than from team sports (Baron-Thiene & Alfermann, 2015). Thus, we study if there are differences in team athletes and individual athletes. Our study aims to better understand motive structures related to dropout and persistence in young elite athletes and to consider implications to support them.

MATERIALS AND METHODS

Study design and participants

The study design corresponds to a panel research design, where the data of the same sample is collected at several measurement points. According to the approach in the current study the athletes were asked to fill out the questionnaires at the beginning of the study. Two years later information about adherence and dropout from elite sport was collected from coaches and teachers of German elite sport-schools. According to the participation list of the first measurement they were asked to indicate athletes who had terminated their sports career and therefore had left the elite sport-school. Consequently, we were able to identify participants who dropped out from elite sports (dropout group) and participants who were still active at a competitive level two years later (adherence group) and compare their data at the beginning of the study.

Table 1. Sample size and demographic characteristics.

	Adherence Group (n = 99)	Dropout Group (n = 47)	Total (N = 146)
Boys	64	18	82
Girls	35	29	64
Age M (SD)	13.85 (1.12)	13.0 (0.99)	13.55 (1.14)
Individual sports	58	41	99
Team sports	41	6	47

146 athletes (64 girls; 82 boys) aged from 12 to 15 years (mean age 13.55 ± 1.14) participated in the study. The athletes were recruited from a German elite sport-school in Berlin having the status of a squad athlete

from the federal government. 99 participants (35 girls; 64 boys) were still attending the elite school two years later (adherence group), 47 participants (29 girls; 18 boys) were dropping out from sports and had left the elite sport-school (dropout group). Demographic characteristics of the sample were described in Table 1.

Measures

The achievement motive was assessed using the Achievement Motive Scale-Sport (German version AMS-Sport; Wenhold, Elbe & Beckmann, 2008). The AMS-Sport is based on the German version (Göttert & Kuhl, 1980) of the Achievement Motives Scale by Gjesme and Nygard (1970). This instrument was adapted to measure sport-specific achievement motivation. The theoretical two-factor structure of an approach and avoidance tendency (McClelland, Atkinson, Clark & Lowell, 1953) with Hope for Success and Fear of Failure, respectively, has been proven in the German sport-specific version. The internal consistencies were above .90 and the retest reliability reveals acceptable values for the German version (Elbe & Wenhold, 2005). The validity of the AMS-Sport questionnaire was confirmed by Elbe, Wenhold and Müller (2005). The questionnaire containing 15 items to measure Hope for Success and 15 items to assess Fear of Failure were rated on a 4-point Likert scale ranging from 3 = strongly agree to 0 = strongly disagree.

The assessment of the affiliation motive was performed using the Affiliation Motive Scale-sport (German version AnMS-Sport; Elbe & Krippl, 2007; Elbe, Krippl, Melzer & Teubel, 2013). Background of the development of the scale AnMS-Sport is the affiliation motive, which is composed of the two factors of Hope for Affiliation and Fear of Rejection (Mehrabian & Ksionzkys, 1974) and the affiliative tendency and sensitivity to rejection scales by Mehrabian (1970; 1976). The theoretical two-factor structure has been demonstrated (Elbe, Krippl, Melzer & Teubel, 2013). The items of the factor Hope for Affiliation refers to a self-reported high expectation of success and affirmation in interaction with other people or in sports activities with others. The Fear of Rejection factor includes statements expressing a low expectation of success in interaction with others or fear of rejection by others in a sports group. The AnMS-Sport measures Hope for Affiliation with 5 items and Fear of Rejection with 5 items rated on a 4-point Likert scale ranging from 3 = strongly agree to 0 = strongly disagree. The German scale shows satisfactory Cronbach's alpha (Hope for Affiliation α = .80; Fear of Rejection α = .81).

Procedures

The data collection was performed in scheduled PE class by the teachers on-site in two German elite sport-schools in Berlin. The students were asked to complete the questionnaires independently. In advance the PE teachers were instructed how to perform the paper and pencil interviewing. The questionnaires were anonymized by using a 12-digit code consisting of the birthday of their parents or legal guardians.

Ethics

All research procedures were conducted with strict adherence to ethical principles as set forth by the university involved. From the Ministry of Education in Berlin an approval for the study was obtained. Written information was given previously to the study to the participating school headmasters and teachers. Prior to study, all parents or legal guardians provided written informed assent. The participation in the study was voluntary and the elite sport students could withdraw from it at any time.

Analysis

The two factors of the German AMS-Sport and the two factors of the AnMS-Sport show good internal consistency (Cronbach's alpha; Connelly, 2011) (see Table 2). Descriptive statistics of the variables were calculated, Kolmogorov-Smirnov test was used to assess the normality of the data. As the data was not normally distributed the non-parametric Mann-Whitney U-Test was applied to determine the differences

between the groups. The effect size was calculated with Cohen's d and interpreted as d = .20 small effect; d = .50 medium effect; d = .80 strong effect (Cohen, 1988). The significance level was set up at $p < .05$. The statistical data treatment was carried out with SPSS 25.0.

Table 2. Cronbach's alpha results of the German AMS-Sport and the German AnMS-Sport.

Factor	Items	*n*	Cronbach's alpha
Hope for success (AMS-Sport)	1-15	146	.83
Fear of failure (AMS-Sport)	16-30	146	.91
Hope for affiliation (AnMS-Sport)	1-5	146	.83
Fear of rejection (AnMS-Sport)	6-10	146	.86

RESULTS

The results revealed a high level in the hope to be successful whereas the fear to fail is even lower in all the participants. The same results can be observed in the two scales of the affiliation motive (see Table 3) As expected, the results of the Mann-Whitney U-test show a significant difference between the athletes who dropped out from junior elite sports and athletes who were still active at a competitive level in the avoidance tendency of the achievement motive (see Table 3). However, the effect is small. In the approach tendency no significant differences could be observed between the two groups. Contrary to our expectations the findings show no significant differences between the two groups in the affiliative tendency and sensitivity to rejection scales.

Table 3. Differences between dropout and adherence athletes in achievement motive and affiliation motive.

Motive	Group	n	Mean	SD	Mean rank	Z	*p*	d
Hope of success	Dropout	47	34.8	6.05	72.60	-.178	.86	.014
	Adherence	99	34.6	5.25	73.93			
Fear of failure	Dropout	47	16.04	8.88	83.54	-1.979	.048*	.16
	Adherence	99	12.93	8.87	68.73			
Hope for affiliation	Dropout	47	13.23	1.92	74.52	-.210	.834	.017
	Adherence	99	12.85	2.69	73.02			
Fear of rejection	Dropout	47	5.88	2.9	83.34	-1.946	.052	.16
	Adherence	99	4.81	4.14	68.83			

*Note. * p = < .05 two-tailed, d= Cohen`s d.*

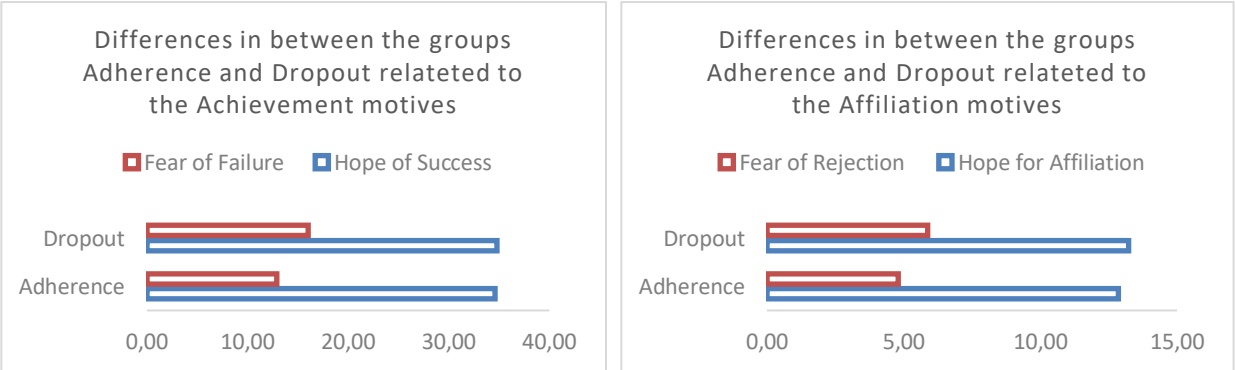

Figure 1. Differences between dropout and adherence athletes in achievement motive and affiliation motive.

The findings show that in both groups the means of the approach tendencies of the achievement motive (Hope of Success) and the affiliation motive (Hope for affiliation) are higher compared with the fear to fail and the fear to be rejected (see Figure 1).

As expected, there were some significant results when comparing the genders, which were particularly evident in the fear motives (see Table 4).

Table 4. Differences between male and female athletes in achievement motive and affiliation motive.

Motive	Group	n	Mean	SD	Mean rank	Z	*p*	d
Hope of success	Female	64	33.4	5.79	65.3	-2.06	.040*	0.17
	Male	82	35.3	5.16	79.75			
Fear of failure	Female	64	16.54	8.92	85.94	-3.1	.002*	0.26
	Male	82	11.95	8.53	64.06			
Hope for affiliation	Female	64	13.02	2.27	73.03	-.12	.9	.01
	Male	82	12.94	2.62	73.86			
Fear of rejection	Female	64	5.98	3.79	82.75	-2.31	.02*	0.19

*Note. * p = < .05 two-tailed, d= Cohen`s d.*

With respect to gender the results indicate significant differences between the male dropout group and the male adherence group in the two scales of the affiliation motive with a small effect, whereas the female groups do not show any differences in the affiliation motive (see Table 5). No such similar results could be found in the achievement motive.

Table 5. Differences between male and female dropout and adherence athletes in achievement motive and affiliation motive.

Motive	Group	n	Mean	SD	Mean rank	Z	*p*	d
Hope of success	Adherence female	35	33.85	5.24	32.46	-.222	.825	0.03
	Dropout female	29	33.00	6.49	31.43			
	Adherence male	64	34.73	5.89	41.19	-.565	.572	0.07
	Dropout male	18	36.11	5.09	44.74			
Fear of failure	Adherence female	35	15.53	8.41	30.96	-.51	.613	0.06
	Dropout female	29	17.25	9.32	33,3			
	Adherence male	64	10.48	8.45	39.80	-1.53	.126	0.19
	Dropout male	18	14.56	8.25	49.42			
Hope for affiliation	Adherence female	35	13.25	2.44	35.58	-1.78	.76	0.22
	Dropout female	29	12.8	2.01	27.59			
	Adherence male	64	12.65	2.8	39.08	-2.12	.034*	0.27
	Dropout male	18	14.25	1.47	51.84			
Fear of rejection	Adherence female	35	6.15	3.01	33.51	-.74	.46	0.09
	Dropout female	29	6.95	4.34	30.11			
	Adherence male	64	4.05	3.84	38.11	-2.72	.007*	0.34
	Dropout male	18	6.55	2.76	55.11			

*Note. * p = < .05 two-tailed, d= Cohen`s d.*

Comparing team and individual athletes no differences in the achievement motive and the affiliation motive could be observed (see Table 6). Furthermore, we did not find differences between the adherence group and

the dropout groups in the achievement motive and affiliation motive regarding team and individual athletes (see Table 7).

Table 6. Differences between team and individual athletes in achievement motive and affiliation motive.

Motive	Group	n	Mean	SD	Mean rank	Z	*p*	d
Hope of success	Individual	99	34.37	5.99	72.9	-0.4	.968	0.03
	Team	47	34.87	4.34	73.2			
Fear of failure	Individual	99	14.33	9	75.1	-.85	.393	0.07
	Team	47	12.74	8.61	68.7			
Hope for affiliation	Individual	99	13.07	2.2	72.6	-.15	.877	0.01
	Team	47	12.85	2.94	73.7			
Fear of rejection	Individual	99	5.45	3.68	77	-1.64	.100	0.14
	Team	47	5.12	3.79	64.8			

*Note. * p = < .05 two-tailed, N=number, d= Cohen`s d.*

Table. 7. Differences between team and individual athletes in the dropout and adherence group in achievement motive and affiliation motive.

Motive	Group	n	Mean	SD	Mean rank	Z	*p*	d
Hope of success	Adherence Team	41	34.95	5.86	24.24	-.32	.749	0.05
	Dropout Team	6	34.3	5.13	22.3			
	Adherence Individual	58	34.4	5.86	50.03	-.011	.991	0.00
	Dropout Individual	41	34.2	6.23	49.96			
Fear of failure	Adherence Team	41	12.39	8.59	23.3	-.91	.36	0.13
	Dropout Team	6	15.17	9.2	28.8			
	Adherence Individual	58	13.3	9.12	46.19	-1.57	.116	0.16
	Dropout Individual	41	16.17	8.95	55.39			
Hope for affiliation	Adherence Team	41	12.63	3.06	23	-1.37	.169	0.2
	Dropout Team	6	14.33	1.21	30.83			
	Adherence Individual	58	13	2.41	50.76	-.325	.745	0.03
	Dropout Individual	41	13.07	1.97	48.93			
Fear of rejection	Adherence Team	41	4.2	3.93	23.07	-1.22	.222	0.18
	Dropout Team	6	6.08	4.2	30.33			
	Adherence Individual	58	5.16	3.81	47.64	-.977	.329	0.1
	Dropout Individual	41	5.85	2.73	53.34			

*Note. * p = < .05 two-tailed, N=number, d= Cohen`s d.*

Regarding age-specific differences between dropout and adherence groups we did not find differences in the achievement motive and the affiliation motive except with respect to the fear to fail with 9/10 graders (see Table 8). To compare 7/8 graders and 9/10 graders the results implied that the hope of success in the dropout group differ significantly (Z = -2.26; *p* = .24; d = 0.33).

DISCUSSION

The current study investigates, if young athletes continuing their sports career differ from athletes who quit sports in the sport-specific achievement motive and affiliation motive. The results indicate that there are some differences between the study groups. These can be seen above all in the fear motives, which were more pronounced in the dropouts.

Table. 8. Differences between 7/8 graders and 9/10 graders in the dropout and adherence group in achievement motive and affiliation motive.

Motive	Group	n	Mean	SD	Mean rank	Z	*p*	d
Hope of success	Dropout 7/8	30	35.47	6.28	34.5	-.594	.55	0.07
	Adherence 7/8	35	35.03	6.15	31.71			
	Dropout 9/10	17	32	5.05	32.8	-1.62	.11	0.18
	Adherence 9/10	64	34.5	5.5	43.18			
Fear of failure	Dropout 7/8	30	15.6	9.93	34.63	-.646	.518	0.08
	Adherence 7/8	35	13.8	9.33	31.60			
	Dropout 9/10	17	16.76	6.88	51.06	-1.99	.047*	0.22
	Adherence 9/10	64	12.45	8.65	38.33			
Hope for affiliation	Dropout 7/8	30	13.3	1.76	32.35	-.267	.79	0.03
	Adherence 7/8	35	13.11	2.69	33.56			
	Dropout 9/10	17	13.11	2.23	42.38	-.29	.78	0.03
	Adherence 9/10	64	12.7	2.7	40.63			
Fear of rejection	Dropout 7/8	30	5.77	2.9	37.58	-1.816	.069	0.2
	Adherence 7/8	35	4.54	4.58	29.07			
	Dropout 9/10	17	6.09	2.98	47.03	-1.2	.232	0.13
	Adherence 9/10	64	4.97	3.91	39.40			

*Note. * p = < .05 two-tailed, N=number, d= Cohen`s d.*

Our results indicate that the hope for success does not distinguish between adherence and dropout athletes whereas the fear of failure represents an unfavourable motivation profile for a long-term sport career as demonstrated by other authors (Calvo et al., 2010; Back et al., 2022). As noted by Schmid, Charbonnet, Conzelmann and Zuber (2021) the fear of failure possibly is a career-limiting motivational profile in young athletes, and they suggest analysing motivational profiles at an early career stage to design targeted psychological interventions. The development of career-promoting motivational patterns during adolescence could contribute to avoid dropping out from elite sports. However, there are contractionary results, for example, Sors et al. (2020) argued that there are no correlations with the general achievement motive and a dropout, but there are with physical and mental fatigue.

Current research (Baron-Thiene & Alfermann, 2015; Granz et al., 2019; Múrcia Corrales & Olaya-Cuartero, 2022) exposes that the dropout rates are higher in young female athletes than in male athletes. Our study shows the same results, with 45% of female dropouts, while only 22% of male athletes quitting sports. Furthermore, our results demonstrate in terms of the achievement motive, that male athletes have significantly higher values for hope of success and significantly lower values for fear of failure compared to the female athletes. These results are consistent with the findings of Stucke and Lippert (2013) and Stiller, Würth and Alfermann (2004) who found significant differences between male and female athletes in the achievement motivation. In conclusion, it can be assumed that young female athletes are more likely to develop fears than young male athletes. This is probably due to an external causal attribution in the case of success and an internal causal explanation in the case of failure.

When comparing the two different age groups we found differences only in the Fear of Failure in the older age group (grade 9/10). The fear to fail was significantly higher in the dropout group than in the adherence group. In the dropout group the fear to fail is lower in the younger age group (grade 7/8) than in the older age group (grade 9/10). This finding is in accordance with the study of Correia et al. (2017) identifying that older athletes exhibit higher anxiety. An increase in the fear motives could be connected with other burnout

symptoms which could be associated with a higher risk of dropout as Isoard-Gautheur, Guillet-Descas and Gustafsson (2016) presented in their study.

In our study we did not find differences in the achievement motive between individual sports and team sports and contrary to other studies (Baron-Thiene & Alfermann, 2015) the adherence group and the dropout group do not differ in the hope of success and the fear of failure.

Studies have shown that the relationship with other athletes and coaches play a major role in the dropout of athletes (Hassan et al., 2017; Wendling, Flaherty, Sagas & Kaplanidou, 2018). We expect that less hope of closeness and the fear that other athletes or the coach will probably reject them is more likely to be found in the group of dropouts. In our study we found no differences between dropouts and athletes who continue their sports career in the sport-specific affiliation motive with the components of hope for affiliation and fear of rejection.

A closer look revealed that the fear of rejection is significantly higher with the female athletes. These results are in line with a study by Correia et al. (2017) who found female athletes showing higher values for fear expressions and a study by Ganz et al. (2019) revealing that female adolescent elite athletes showing higher scores of burnout symptoms which foster early dropout of elite sports. Murray and Sabiston (2021) illustrate that female athletes who enjoy sports are significantly less likely to drop out. The high level of social identity that has been found in their study in the female athletes is associated with an increase of enjoyment in sports, which in turn was considered an influencing factor for dropping out from elite sports. When comparing the dropout and adherence groups, significant differences were only evident in the affiliation motives of the male athletes. The male dropouts have significantly higher values in the hope of affiliation and in the fear of rejection than the male athletes continuing their sports career. Accordingly, there seems to be a disbalance between the affiliative tendency and sensitivity to rejection in the male dropouts. High expectations of closeness but negative social experiences can lead to an increase in the fear of rejection with a probably negative effect on the continuation of the sports career.

Surprisingly, there are no differences between team and individual athletes in the two study groups in the hope of closeness and the fear to be rejected.

CONCLUSIONS AND IMPLICATIONS

If the problem of dropout in young elite sports is to be tackled, supportive measures from the competitive sport system on the one hand and tailored psychological interventions on the other hand are essential. Considering that the change of motives is difficult and needs time, a career-limiting motivational profile has to be diagnosed at an early stage and then tackled accordingly in order to avoid an early dropout.

In our study we found some differences between young athletes dropping out from elite sports and athletes continuing their sport career in the achievement and affiliation motive. In particular, it can be seen that fear motives play a significant role when comparing the two groups. In this context the athletes' coach's approach in particular could have a positive impact on the athletes' continuing their careers, as it could reduce fears that are directly related to task mastery and the level of difficulty of the task (Granz et al., 2019). On the other hand, anxiety due to personalized negative criticism in training and after competition and continuously pressure by the coach were identified as a negative impact on continuing elite sports (Myer et al., 2016; Witt and Dangi, 2018). The resulting self-doubts about one's own performance were found in studies by Montesano, Tafuri and Mazzeo (2017) and Thomas, Cote and Deakin (2008) and emphasize the role of fears

of failure. To reduce fears and the possibility of dropout perceived enjoyment within the training is one coach's approach (Visek, 2015; West and Strand, 2016).

Even if our results are in line with some current research more studies are needed considering the inconsistent findings. With regard to a career-limiting motivational profile especially the impact of support systems and people influencing the career of young elite athletes as described by Thompson, Rongen, Cowburn and Till (2022), could be an approach for future research in the area of dropout in young elite athletes.

AUTHOR CONTRIBUTIONS

Sebastian Schröder und Elke Knisel, conceived and designed the measuring instrument, collected data, analysed and interpreted the data, drafted the manuscript, and approved the final version submitted.

SUPPORTING AGENCIES

No funding agencies were reported by the authors.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

ACKNOWLEDGEMENTS

The researchers would like to thank the Berlin Elite Schools of Sport for the opportunity to collect data so that this article can be properly completed and used by teachers, coaches and athletes. We acknowledge the support of the Open Access Publication Fund of Magdeburg University.

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