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Examination of Youth Athletes' Team Cohesion and Collective Efficacy Beliefs

Genç Sporcularda Takım Sargınlığı ve Kolektif Yeterlik İnançlarının İncelenmesi

Umut SEZER,[a]
Serdar KOCAEKŞİ[b]

Departments of
[a]Physical Education and Sports,
[b]Physical Education and Sports Teaching,
Anadolu University
Faculty of Sport Sciences,
Eskişehir

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Correspondence:
Umut SEZER
Anadolu University
Faculty of Sport Sciences,
Department of Physical
Education and Sports, Eskişehir,
TURKEY/TÜRKİYE
umutsezer@anadolu.edu.tr

The validity and presented at of the "Genç Spor Çevre Envanteri (GSÇE)" "(Youth Sport Environment Questionnaire - YSEQ)" was presented as an oral presentation under the title "Turkish Adaptation Study of the Youth Sport Environment Questionnaire" at The 4th International Balkan Conference in Sport Sciences."

ABSTRACT Objective: This research aims to examine team cohesion beliefs of youth athletes based on gender and team tenure, and team cohesion-collective efficacy relationship in youth sport. **Material and Methods:** The participants were 180 males (age: 15.41±1.15 year) and 70 females (age: 14.70±1.09 year), 250 athletes in total (age: 15.10±1.16 year), involved youth academies for team sports (football, basketball and volleyball). The Collective Efficacy Scale and Youth Sport Environment Questionnaire were used to assess the athletes' collective efficacy beliefs and perceptions of team cohesion. Descriptive statistics, one-way MANOVA, one-way ANOVA, Pearson Moment correlations, multiple regression and bootstrapping procedures were used to analyze the research data. **Results:** Results showed significant differences on both the task and social dimensions of team cohesion based on the gender of participants ($p<0.05$). Team cohesion beliefs did not differ based on team tenure ($p>0.05$). Significant negative correlations were observed between task cohesion and collective efficacy ($r=-0.312$, $p<0.01$) and between social cohesion and collective efficacy ($r=-0.149$, $p<0.05$). An indirect effect of social cohesion on collective efficacy through task cohesion was observed ($\beta=-0.05$, BCa 95% CI=[-0.08 to-0.03]). **Conclusion:** The findings of this study suggest that high social cohesion may have adverse effects on collective efficacy in youth sport settings.

Keywords: Team cohesion; collective efficacy; youth athletes

ÖZET Amaç: Bu araştırmanın amacı, genç sporcuların takım sargınlığı inançlarında cinsiyet ve takımda bulunma süresi değişkenlerinin etkisini ve takım sargınlığı-kolektif yeterlik ilişkisini incelemektir. **Gereç ve Yöntemler:** Araştırmaya takım sporları (futbol, basketbol ve voleybol) altyapı liglerinde mücadele eden 180 erkek (yaş: 15,41±1,15 yıl) ve 70 kadın (yaş: 14,70±1,09 yıl) sporcu olmak üzere toplam 250 sporcu (yaş: 15,10±1,16 yıl) katılmıştır. Sporcuların kolektif yeterlik inançlarını değerlendirmek üzere Kolektif Yeterlik Ölçeği kullanılırken, takım sargınlığı algıları için ise Genç Spor Çevre Envanteri kullanılmıştır. Araştırma verilerinin analizinde betimsel istatistikler, tek yönlü MANOVA, tek yönlü ANOVA, Pearson Çarpım Moment Korelasyon analizi, çoklu regresyon ve bootstrapping yöntemi kullanılmıştır. **Bulgular:** Takım sargınlığının görev ve sosyal boyutlarında cinsiyete göre anlamlı bir fark olduğu ($p<0,05$), sporcuların takımda bulunma sürelerine göre ise takım sargınlığı inançlarında anlamlı bir fark olmadığı görülmüştür ($p>0,05$). Araştırmaya katılan genç sporcuların görev sargınlığı ile kolektif yeterlik inançları ($r=-0,312$, $p<0,01$) ve sosyal sargınlık ile kolektif yeterlik inançları ($r=-0,149$, $p<0,05$) arasında anlamlı negatif yönde ilişkiler saptanmıştır. Sosyal sargınlığın kolektif yeterlik üzerinde görev sargınlığı yoluyla dolaylı ve negatif bir etkiye sahip olduğu görülmüştür ($\beta=-0,05$, %95 yanlılık hatasından arındırılmış ve düzeltilmiş güven aralığı=[-0,08-0,03]). **Sonuç:** Genç sporcularda yüksek düzeyde sosyal sargınlık algısının, sporcuların kolektif yeterlik inançları üzerinde olumsuz etkilere sahip olabileceği tespit edilmiştir.

Anahtar Kelimeler: Takım sargınlığı; kolektif yeterlik; genç sporcular

The notions of team cohesion and collective efficacy are group features that show up as a consequence of group processes, greatly affecting important team outputs like success and performance. Cohesion is seen as an important group dynamic, as it affects the group's performance in a positive manner, along with providing individual work satisfaction and psychological well-being.[1] While cohesion was described in initial studies as a one-dimensional construct, later studies have revealed that cohesion is a construct that is actually multi-dimensional.[2-6] While Carron approaches the concept from the multi-dimensional perspective and defines it as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives," Campbell and Martens define it as "the stimulated mutual pull that enables the individuals in the group to stick together and desire to always work together."[7,8]

For the purpose of measuring cohesion, which is considered a key variable in team success, Group Environment Questionnaire - GEQ was developed by Carron et al. Some researchers, however, have questioned the Group Environment Questionnaire's structuring of factors.[9-11] The concern is whether the items in the Group Environment Questionnaire can be used with groups and/or cultures other than the original target population, which consisted of male and female athletes aged between 18-30 years who were competing as part of competitive or recreational sports teams.[12] Since individual's age and development determine the aspect and density by which the individual will be affected by the group process in a psycho-social context, perceptions of team cohesion within various age groups is an important matter.

Another important notion to be approached when looking at group and team processes is the belief about collective efficacy, a group feature that arises from members' interactions and coordinative dynamics. Bandura defined collective efficacy as "a group's shared belief in their conjoint capabilities to organize and execute the courses of action required to produce given levels of attainments." Collective efficacy reflects a common sense that requires consensus on a certain level. In this context, collective efficacy, as much as it is a construct at the group level, represents the team members' individual perceptions towards the whole of the group.[6,13]

While previous conceptualizations of team cohesion have considered collective efficacy to be a premise of team cohesion, later research has revealed that collective efficacy is both a result of and a premise of team cohesion, so much so that a group's collective efficacy belief can affect the effort they actually make or the level of persistence they show when met with an obstacle.[13-15] The team's cohesion and collective efficacy mutually feed each other, affecting the group dynamics. Various studies in the field have revealed that there exists a linear relationship between team cohesion and collective efficacy.[16-21] When these studies are evaluated in the context of the collective efficacy-cohesion relationship, what emerges is that a high perceived collective efficacy is related to cohesion's three dimensions of Group Integration-Task, Group Integration-Social, and Individual Attractions to the Group-Task.[16-21]

Validated team cohesion instruments that differentiate between adults, adolescents and children already exist in the published literature, yet not many studies have so far considered the relationship between team cohesion and collective efficacy in younger populations.[9,12,22] Hence, team cohesion and collective efficacy relationship in different age stages needs exploration within the context of the relevant age group. In this study, we examined the effects of gender and team tenure on team cohesion, and the relation of collective efficacy to cohesion in youth sport.

MATERIAL AND METHODS

PARTICIPANTS

A total of 250 athletes (age: 15.10±1.16 year) residing in Eskişehir-TURKEY participated in this research. These included 170 males (age: 15.41±1.15) and 80 female athletes (age: 14.70±1.09) participating in team sports such as football (121 males, age: 15.00±1.07), basketball (49 males, age: 16.16±0.89; 28 females, age: 15.57±1.23) and volleyball (52 fe-

males, age: 14.07±0.26) in the adolescent age category.

PROCEDURE AND MEASURES

Various sampling methods were considered during the design of the study and the convenience sampling method was chosen over random sampling due to practical constraints of time and resources.

The study protocol was approved by the scientific ethics committee of Anadolu University. Due to the participants being minors under the age of 18, the researchers needed to ask permission from the families and coaches. It was ensured that participation occurred on a strictly voluntary basis by sending out a Parent Permission Form. A training day was designated for each team solely for the sake of data collection and it was conducted by the researcher himself before each training session. The participants were briefed before the commencement of the training about the purpose and the importance of the study, the measurement tools used in the research were introduced, and any athletes who did not want to participate in the research have been held outside of its extent.

Measures used in the study included a demographic form (age, gender and team tenure which was operationalized as the number of years with the team), the Youth Sport Environment Questionnaire (YSEQ) and Collective Efficacy Scale (CES).

COLLECTIVE EFFICACY SCALE

CES, a 7-item scale that developed by Riggs et al. to measure individuals' beliefs towards their team's capacity.[23] It is graded on a 5-point Likert scale (1=strongly disagree, 5=absolutely agree). The Turkish adaptation of the scale was realized by Öcel as cited by Toros.[24] For the chosen sample of this research, the Cronbach alpha value was as 0.72, indicating good internal consistency.

YOUTH SPORT ENVIRONMENT QUESTIONNAIRE

The Youth Sport Environment Questionnaire (YSEQ) was developed by Eys et al. and is used to evaluate the level of team cohesion among young athletes.[12] YSEQ evaluates team cohesion on two different dimensions: "task" and "social." The scale consists of 18 items, with 8 items each for the task and social subscales, and 2 negatively-worded spurious items. YSEQ uses a 9-point Likert scale (1 = strongly disagree, 9= absolutely agree), with the subscale's items added together to calculate a final score. The instrument has shown high internal consistency with Cronbach's alpha ranging from 0.89 to 0.94. [12]

In the present study, the YSEQ was adapted to Turkish culture by taking Hambleton and Patsula's cross-cultural scale adaptation suggestions into consideration.[25] To examine and support YSEQ's construct validity, confirmatory factor analysis was utilized on the same dataset (N=250). After the necessary modifications were made to improve the model data fit, the goodness of fit indices suggest that the two-factor model fits the data quite well (Table 1). Internal consistency of the adapted YSEQ was satisfactory (social cohesion=0.087, task cohesion=0.87, and 0.89 for the whole scale).

DATA ANALYSIS

The construct validity of the YSEQ was verified by confirmatory factor analysis using AMOS 23. Descriptive statistics, one-way MANOVA, one-way ANOVA and Pearson correlation analysis, multiple regression and bootstrapping procedures were used to analyze the research data. The normality of the data was assessed from the estimates of skewness and kurtosis, which should have a range within ± 1.5.[26] These analyses were performed via SPSS 23.

TABLE 1: The goodness of fit indicators related to confirmatory factor analysis.

Index	χ^2	df	P	GFI	AGFI	RMR	NNFI	CFI	RMSEA	SRMR
Value	241.52	102	0.000*	0.893	0.858	0.237	0.909	0.923	0.074	0.0601

df: degrees of freedom; GFI: Goodness-of-fit index; AGFI: Adjusted goodness-of-fit index; RMR: Root mean squared residual; NNFI: Non-normed fit index; CFI: Comparative fit index; RMSEA: Root mean square error of approximation; SRMR: Standardized root mean square residual.

RESULTS

The one-way MANOVA test conducted to determine gender differences on cohesion factors, task cohesion (Pillai's Trace=0.41, F(2, 247)=8.53, p=0.004, η2=0.033) and social cohesion (Pillai's Trace=0.41, F(2, 247)=6.835, p=0.009, η2=0.027), revealed significant results (Table 2). While gender explains 3% of variance in the task cohesion subscale, in the social cohesion subscale it explains 2% of the variance. In this context, there is low level of influence between gender and team cohesion subscales. According to the findings, female participants' perception of cohesion (task = 7.325; social = 7.305) was higher than that of the male participants (task = 6.751; social = 6.824).

There was no significant difference in YSEQ subscales based on team tenure (p>0.05). While the average scores increased over the first three value ranges (0-1 years, 2-3 years, 4-5 years), there was a decrease in average scores on both subscales for the athletes who had been on the team for 6 or more years (Table 3).

There was a statistically significant but negative relationship between collective efficacy scores and the team cohesion subscales, task (r=-0.312, p<0.01) and social (r=-149, p<0.05) (Table 4). When the coefficient of correlation (r) is taken as an absolute value, values which are ≤ 0.35 indicate a weak relationship, 0.36 to 0.67 indicate a moderate relationship and 0.68 to 1.00 indicate a strong relationship.[27] When the coefficient of correlation (r) is taken as a negative, Green and Salkind have stated that a relationship between variables may not be linear, meaning that one of the variables may increase while the other decreases.[28] When the results are viewed in this context, it is clear that the subscales related to team cohesion have an inverse relationship with collective efficacy; there is a moderate relationship between the task cohesion and collective efficacy, and a weak relationship between the social cohesion and collective efficacy. A hypothesis to explain these inverse relationships in youth athletes' perceptions is that, social cohesion might lead to lower levels of collective efficacy through task cohesion. In other words, task cohesion may mediate an indirect effect of social cohesion on collective efficacy. This model depicted in Figure 1.

Multiple regression analyses and bootstrapping procedure were conducted to assess indirect effects of social cohesion on collective efficacy through

TABLE 2: MANOVA comparison table based on the gender variable of the YSEQ subscales.

Effect	Dependent Value	Pillai's Trace	F	Hypothesis Df	p	Error Df	η2
Gender	Task Cohesion	.41	8.532	2	.004	247	.033
	Social Cohesion		6.835	2	.009	247	.027

*p<0.05

TABLE 3: ANOVA comparison table of the YSEQ subscales according to length of time on team.

Scales	TT	N	$\overline{Age}$	$\overline{X}$	Sd	F	p
Task	0-1 year	74	15.25	6.87	1.34	.358	.783
	2-3 years	89	14.96	6.99	1.49		
	4-5 years	40	14.97	**7.07**	1.44		
	6 years or more	47	15.23	6.79	1.65		
Social	0-1 year	74	15.25	6.64	1.32	2.239	.084
	2-3 years	89	14.96	7.07	1.38		
	4-5 years	40	14.97	**7.21**	1.52		
	6 years or more	47	15.23	7.13	1.21		

TT: Team Tenure.

TABLE 4: Correlation analysis results of participants' team cohesion and collective efficacy beliefs.

	Task Cohesion	Social Cohesion	Collective Efficacy
Task Cohesion	1	.481**	-.312**
Social Cohesion		1	-.149*
Collective Efficacy			1

*p<.05; ** p<.01

task cohesion by employing INDIRECT.SPS macro with 1000 resamples (Figure 1).[29] Results showed the indirect effect of social cohesion on collective efficacy through task cohesion was significant (Table 5) (β = -.05, BCa 95% CI=-.08 to -.03).

DISCUSSION

The goals of the present study were to determine gender differences in cohesion levels, examine team tenure -cohesion, and cohesion -collective efficacy relationships in youth sport.

Gender differences were observed in perceptions of the task and social cohesion. According to our findings, female participants had higher scores compared to the male participants for both the social and task subscales. Our results are inconsistent with Paradis and Loughead's findings.[30] In their study, no gender differences were found for youth cohesion. It's important to note that literature has not provided definitive gender differences concerning team cohesion. In the present study, females had particularly higher scores on the social cohesion subscale. Limited evidence, however, suggests that young athletes may display higher levels of social cohesion than older athletes with more competition.[31] In previous work, it is stated that gender is one of the individual factors that affect team cohesion; male and female athletes have their differences in terms of task and social cohesion, and reactions may differ based on gender due to the approach the coach takes.[32] In the meta-analysis that Carron et al. conducted on the relationship between cohesion and performance, it was revealed that female athletes show a stronger bond between cohesion and performance, compared to male athletes.[33] When our results are evaluated in this context, it is believed that in order to develop team cohesion among female athletes, focus should be placed on social cohesion. Future research, therefore, should attempt explore the gender differences and seek an explanation.

On the participants' perception of task and social cohesion, there was no statistically significant difference based on the tenure of the team members. This result does not support Jewitt et al.'s findings of a statistically significant difference on social cohesion based on athletes' time on the team.[34] Brawley et al. stated that the athletes on a team during the periods immediately following the team's formation have focused on task cohesion rather than social cohesion.[35] Although there were no statistically significant findings in this study for team tenure, the average social cohesion score of the new team members was higher than the average score on task cohesion. In this context, it has been emphasized that the athletes who have been on the team for a longer period have a stronger perceived general cohesion

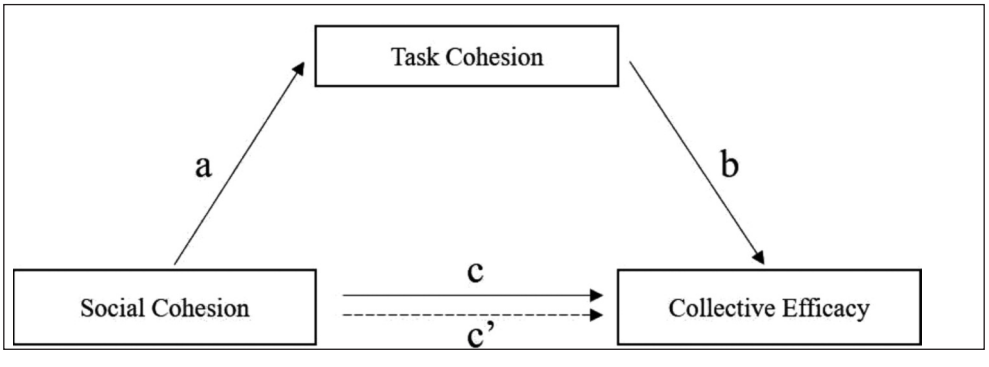

FIGURE 1: Proposed indirect effect model

TABLE 5: Mediation of the effect of social cohesion on collective efficacy through task cohesion.

	Path a		Path b		Path c		Path c'		Indirect effect		
									Point estimate	BCa 95% CI	
	β	p	β	p	β	p	β	p	β	Lower	Upper
Social Cohesion	.51**	.00	-.10**	.00	-.05*	.018	.00	.98	-.057	-.08	-.03

Path a = Social Cohesion → Task Cohesion
Path b = Task Cohesion → Collective Efficacy
Path c = Social Cohesion → Collective Efficacy (total effect)
Path c' = Social Cohesion → Collective Efficacy (direct effect)
BCa = bias corrected and accelerated; CI = confidence interval.
*p<.05; ** p<.01

than those who have just joined the team.[34] As such, research has shown that cohesion is positively associated with perceived belonging.[36]

There was a negative but statistically significant relationship between the participants' collective efficacy scores and the team cohesion task and social subscales. While a weak relationship was seen between social cohesion and collective efficacy, there was a moderate relationship between task cohesion and collective efficacy. In other words, there was a stronger effect of task cohesion on collective efficacy. When the aspect of this relationship is taken into consideration, it can be said that the athletes who have a higher task cohesion also have a low level of collective efficacy belief. No findings supporting this result were found in the literature. The few team cohesion and collective efficacy studies that have been conducted on adult athletes have pointed to a positive and reciprocal relationship between team cohesion and collective efficacy.[16-19,37-39] In particular, some aspects of task cohesion are associated with collective efficacy.[40] In Toros's study evaluating adolescent basketball players' team cohesion and collective efficacy before and after the tournament, the relationship between these two concepts was found to be positive.[41] However, in Price and Weiss's study of adolescent female athletes, a moderate positive relationship between collective efficacy and the social and task cohesion subscales was found.[42] When the results are evaluated in this context, it was expected that the teams with a higher perception of team cohesion would also have a higher level of collective efficacy. The common ground held by studies about cohesion is that idea that cohesion is a group feature that has a positive effect on team processes. Sports psychologists' and coaches' desire to enhance their teams' cohesion level is an ultimate result of this common ground in the literature. However, the ever-increasing literature on team cohesion may also be yielding some negative outcomes.[43-45] A high-level of task cohesion may cause decreased group-level social relations, communication problems, negative responses on an individual-level, contradictory attitudes, increased perceived pressure, and a decrease in the individual's contribution. A high-level social cohesion, on the other hand, may cause group level time wastage, purpose-related problems, negative outcomes like communication problems, individual-level decreases in focus and task commitment, social-isolation, and social commitment issues.[44] According to our findings, social cohesion had negative indirect effects on collective efficacy through task cohesion. That is to say, the more social cohesion develops within a youth team, the more it sets back the task cohesion and thus it negatively affects collective efficacy. Considering the mediation effect of social cohesion on the relationship between ingroup ties and antisocial behavior toward teammates, high social cohesion predicted more frequent antisocial behaviors toward teammates.[46] Furthermore, Bruner et al. observed that high social cohesion is associated with increased perceptions of negative experiences.[47] It is thought that these potential negatives should be evaluated using the argument of Zaccaro et al. that individual-level cohesion may be a precursor to collective efficacy.[20,39] Approached from this perspective, it can be said that the negative relationship between

team cohesion components and collective efficacy may be a result of individual-level negativity. Based on our findings, the athletes who participated the study had a higher level of social cohesion. Rovio et al.'s idea of high-level social cohesion may gradually affect the team's process in a negative way; can be treated as another argument for what leads to the negative relationship between team cohesion components and collective efficacy beliefs.[43] According to Langfred, in teams that care about both team and the individual productivity, cohesion is an auxiliary feature that keeps the individuals under control via the force of informal group pressure.[45,48] However, in groups that do not place an emphasis on productivity, a reverse effect can be seen. Therefore, a group having a high-level of cohesion will increase its resistance in a similar manner.[48] When evaluated from this point of view, with a high perceived level of cohesion, in a youth sports environment whose priority is to build character, the athletes' individual care and effort will be aimed at staying within the boundaries determined by the team norms and past experiences.[49] In line with this suggestion, Høigaard et al. has found that perceived cohesion is associated with increased conformity to group norms.[50] Highly cohesive teams, in other words, will likely comply with the normative behavioral standards that have been set in the team. At this point, anyone who wants to develop different approaches and apply these approaches on a group level will need to face the issue of group resistance. The higher the team's cohesion level, the higher the level of resistance will be. To emphasize this point in a different manner, cohesion has a structure that protects the team's dynamic. Therefore, we believe that high levels of perceived social cohesion may have adverse effects on collective efficacy.

In summary, it is believed that high team cohesion in young athletes may lead to decreased collective efficacy beliefs due to various team dynamics; in this context, athletes with a higher social cohesion perception are thought to showcase a lower efficacy belief. However, the findings herein should be interpreted cautiously in the light of several limitations and assumptions. First, it is assumed that CES has validity for youth in measuring what it purports to measure. Hence, the validity of the findings is limited to a large extent by the validity of CES in youth. Second, our small sample size and convenience sampling from a single city limits the power and possibly the generalizability of our findings.

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Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Concept: *Umut Sezer, Serdar Kocaekşi;* ***Design:*** *Umut Sezer, Serdar Kocaekşi;* ***Supervision:*** *Serdar Kocaekşi;* ***Data Collection:*** *Umut Sezer;* ***Analysis and/or Interpretation:*** *Umut Sezer, Serdar Kocaekşi;* ***Literature Review:*** *Umut Sezer;* ***Writing of the Manuscript:*** *Umut Sezer.*

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