Original Article

Psychological implications in the coaching context: the mediating role of motivational intensity and team cohesion in elite sport performance

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Abstract:

Purpose: The primary purpose of the existing research was to determine relationships of coaches, team cohesiveness, motivational intensity with players' performance of field hockey at national level. The secondary objective of the present study was to determine the regression effect on the performance of field hockey players and the role of mediators between independent construct and outcome variable. **Material and Methods:** The population (N=3207) was comprised of Pakistani national players of field hockey. The large sample size comprising 510 respondents was chosen for the purpose of data collection. Adapted and modified survey questionnaire with the permission of diverse original authors was employed as research instrument. Descriptive statistics, correlation analysis and multiple regression analysis were utilized to evaluate the collected data. **Results:** The findings revealed medium and significant association of hockey coaches with performance of national players. Results indicated that team cohesiveness had better and significant association with Pakistani players' performance. Findings revealed significant and medium association between motivational intensity and players' performance. The results of multiple regression analysis revealed that all constructs had significant effect on outcome variable. Findings to test the path model revealed that mediating constructs along with independent variable contributed significantly to the performance of national hockey players. **Conclusion:** It was overall concluded that the thrust of good coaching structure, excellent team collaboration, and high motivation intensity is still required to boost players' performance of Pakistani field hockey at its national level. The sport authorities, sports federations, sports associations, and sport institutions of the field hockey should take serious steps to uplift the past statures and glories of their national game.

Key Words: Sport Coaches, Motivational Intensity, Team Cohesion, Elite Sports Performance, Pakistan

Introduction

Pakistan had a great name in its national game (field hockey) than its small geography on the world map. It won laurels in field hockey sport from its beginnings. Pakistan has a golden past having four world cup titles on its credit. However, the national game has been played under severe criticism and decline from the last two decades. One of the reasons of decline of field hockey may be its poor grassroots and domestic levels (Rasool, 2014; Smith, Cotterill, & Brown, 2020). It is not possible to get success at international arena without developing school, college, and club hockey at its grassroots level.

Pakistan Hockey Federation is trying its best to uplift the declining levels of field hockey from grassroots level to national competitions (Rasool, 2014). The World's successful teams are performing excellently at international levels by development of their grassroot and domestic levels by fitness and technologies (Zhamardiy, Shkola, Tolchieva, & Saienko, 2020; Daniai & Harvey, 2020; Gorner & Reineke, 2020). Furthermore, Rasool added that Pakistan could not take credit of good performance at international podium until it produces excellent players at its domestic level. The national sport cannot achieve its status back to heights until grassroot level competitions are organized regularly (Rasool, 2013).

Pakistan Hockey Federation (PHF) is an organizing and governing body working with all hockey aspects within Pakistan and a member of Federation of International Hockey (FIH). PHF deals with all the domestic field hockey institutions (departments, units, and clubs). But only the departments and units can participate in National Games or National championships which are affiliated with PHF. Overall numbers of 23

national institutions are affiliated with PHF in which 15 are national departmental teams, whereas, eight (8) are units' teams.

As a key factor, coaching may be considered a facet of team interaction that is managing players' capability to endeavor further intensive approach to transport good outcomes (Hackman, 2002). Coaches involve players to achieve the tasks set for the team throughout their life span from infantile and schooling to maturity (Hackman & Wageman, 2005; Freire, Tannure, Goncalves, Aedo-Munoz, Perez, Brito, & Miarka, 2020). Parents supporting them in their early life career, a teacher boosts up their academic knowledge, and a coach shines their hidden abilities. They also declare that team coaching is an action of leadership, nonetheless it is considered the supreme one in team performance. In addition, Team leaders are involved in many distinguished types of behaviors envisioned to temporary team efficiency as well as forming the team serving individual players reinforcing their own charities to the team all together to serve players utilizing their share good enough in chasing team objectives (Hackman & Wageman, 2005; Aoki, Katsumata, Hirose, & Kohmura, 2020).

The coaching procedure is a part of the sport associated with the results which the players ensure as contributors (Sullivan, Whitaker-Campbell, Bloom, & Falcao, 2014). Successful coaches are valued with several types of coaching strategies and they evaluate practical performance of their teams. However, coaches are considered very strong facet in the performance of successful teams. Their strong interaction with the team becomes one of the central parts in team success. Coaching is that procedure wherein the coaches make their level best to influence the behavior of players to achieve their anticipated response (Sarpira, Khodayari, & Mohammadi, 2012; Trninic, Papic, & Trninic, 2009).

The second effect which may affect the Pakistani hockey is team cohesiveness that is characterized as personal factor. This factor has two sub-domains as individual orientation and individual satisfaction, subsidizing to team cohesiveness. Individual orientation is derived from task motivation. The teams keeping high task motivation are going to be very successful than teams holding low task motivation. The second type of personal factor is individual satisfaction. Besides the improvement by the obvious conducts of team players, their contribution and related accountabilities are interconnected a lot among team players (Cope, Eys, Beauchamp, Schinke, & Bosselut, 2011; Aristotelis, Evangelos, Ioannis, Stergios, Ioannis, & Antonios, 2013; Eys, Olhret, Evans, Wolf, Martin, Bussel, & Steins, 2015). Environmental factors commonly affect the coach and the player together (Carron, 1982). The significance of team constructing is to improve the skills and such behaviors as raise optimum team working (Yukelson, 2010). More cohesive teams tend to be highly united and dedicated to achievement contrary to team holding less cohesion (Mach, Dolan, & Tzafrir, 2010).

Motivation is another factor considered and may contribute more to national game decline. Motivation is superficially measured once a conduct is made to come across outward demands to achieve a reward or evade punishment and is the smallest self-determined type of extrinsic motivation (Reynolds & McDonough, 2015; Mariani, Marcolongo, Melchiori, & Cassese, 2019; Rochniak et al., 2020). Motivation comprised of the need to display capability, achievement, and success (Krouse, Ransdell, Lucas, & Pritchard, 2011; Engan & Sæther, 2018; Biino, Bertinato, Rossini, & Giuriato, 2020). According to theory of motivation (1964), a person has three stages of behavior: i) expectancy (effort); ii) instrumentality (performance); iii) valence (reward), however, a player has to go through within these to become successful (Vroom, 1964). Moreover, Vroom's theory also developed three relationships: a) effort to performance relationship, b) performance to outcome relationship, and c) outcome to personal goal relationship. Therefore, Vroom pointed out that effort becomes a cause of performance goals and these performance goals convert into outcomes or rewards. Noteworthy coaches and their influence on players' motivational developments are main elements of the excellence of sport success (Balaguer, Gonzalez, Fabra, Castillo, Merce, & Duda, 2012). Motivation design of coach distresses the motivation of players circuitously (Kajtna & Baric, 2009). Therefore, coaches can enhance the internal drive of players (Asghar, 2011).

The present research found a gap through poor coaching structure, low team cohesion, and less motivational intensity in Pakistani field hockey that let down the performance of national players. Therefore, the existing research investigated the relationships of coaches' dexterities, team cohesiveness, and motivation with players' performance of national field hockey game in Pakistani context.

The following hypotheses were developed for the existing research:

- i. There is significant association between hockey coaches and Pakistani elite players' performance in their national sport.
- ii. There is significant association between team cohesiveness and national players' performance of Pakistan.
- iii. There is significant association between motivational intensity and performance of national elite players in Pakistan.
- iv. There is significant effect of predicting factors (hockey coaches, team cohesiveness, and motivational intensity) on the outcome variable (performance of national elite players).
- v. There is significant involvement of coaches along with motivational intensity and team cohesion for elite players' performance to test the path model.

Materials and Methods

Research Design

The design planned for the present study is grounded on correlation study (Aron, Aron, & Coups, 2014). The approach acknowledged for the existing research is purely survey quantitative technique.

Population, Sample Size and Sampling

The population is a combination of persons who hold diverse capabilities than the other individuals (Creswell, 2014). Active 3207 National players belonging to various departments and units of field hockey registered with PHF were instituted in place of population for the existing research (PHF, 2013). The sample size of 510 respondents was considered quite satisfactory in survey research. Purposive sampling was utilized due to participation of players in National Games or National Championship and convenient sampling was employed for the selection of active field hockey players as respondents (Vanvoorhis&Morgan, 2007;Johnson &Christensen, 2012).

Criteria for the Selection of Players

The data was collected by the researcher from the national elite players of field hockey in Pakistan. All elite players belonged to national departments and units of the country. The researchers mentioned two conditions as the criteria of selection of players. First, only active elite players of field hockey were considered as respondents of the research. Secondly, those active elite players who had contributed to National Games or National Championships became the respondents of the existing research. The only reason behind selecting active elite field hockey players was that they had a better judgment regarding the difficulties about the national game (field hockey) and they could fill the questionnaire in a proper way.

Tools for Data Collection

Data collection was done through two instruments. First was the survey questionnaire which was designed to make available answers to research questions. Diverse scales were adapted and afterwards, modified with the permission from different researchers. Secondly, skills (technical) and physical capabilities (fitness) of elite players were measured through field performance tests on practical basis.

Data Analysis Approaches

The collected data from the respondents were evaluated through descriptive statistics (mean score and std. deviation), Pearson correlation(r) coefficient, multiple regression analysis and path analysis through structure equation modelling (SEM). The significance was confirmed at 0.01 level

Results

The collected data was analyzed through following statistical techniques:

Descriptive Statistics

Respondents were found within 20 to 29 years of their age level. The mean was considered 25.18 years while, SD measured 1.730 of respondents' age. Skills (technical) were assessed on practical measures in field from the similar cases who participated in the questionnaire.

Correlation Analysis

Pearson correlation analysis was employed to determine the association between independent constructs and outcome variable. Findings indicated that coaches apprehended a significant but medium and optimistic association ($r = .42, p < .01$) with players' performance. Secondly, team cohesiveness was significant and positively correlated ($r = .53, p < .01$) with performance of Pakistani players. Lastly, motivational intensity was found medium, significant, and positive relationship ($r = .47, p < .01$) with elite players' performance displayed in Table 1.

Table 1: Correlations among independent constructs and outcome variable (n=296)

Variables	HC	TC	MI
Hockey Coaches (HC)			
Team Cohesiveness (TC)	.704** (.000)		
Motivational Intensity (MI)	.779** (.000)	.722** (.000)	
Performance of Field Hockey Players (PFHP)	.421** (.000)	.530** (.000)	.466** (.000)

Note. ** Significant level is at 0.01 (2-tailed).

Multiple Regression Analysis

Three models of multiple regression analysis were drawn to determine the contribution of predicting factors in the outcome variable.

Assumptions for Multiple Regressions Analysis

The assumptions to consider could be generated before multiple regression analysis. The assumption intended for multiple regressions comprised of normality, linearity, and homoscedasticity of residuals. The situation may be particularly difficult in multiple regressions if it leads to multicollinearity in data because it can lead to inaccurate results (Garson, 2012; Tabachnick&Fidell, 2007). The results of multicollinearity ensure when

independent variables are highly correlated among themselves. Before the multiple regression analysis was generated, the person's product-moment correlations were made among the independent variables.

There was no multicollinearity found in the results of the data. According to the rules of thumb, if the tolerance is below than .20 and VIF (variance inflation factors) greater than 5 or 10, it is mostly considered an evidence of multicollinearity (Garson, 2012). However, findings of the present study indicated that tolerance values of exogenous constructs comprised of .367 for coaches, .378 for team cohesion, and .294 for motivational intensity along with values of VIF comprised of 2.724, 2.648, and 3.400 respectively for hockey coaches, team cohesion, and motivational intensity.

Models of Multiple Regression Analysis

Three models as Model 1, Model 2, and Model 3 were generated on the base of sun-variables of performance of elite hockey players (outcome variable) under multiple regression analysis to test the hypothesis 4.

Model 1

A multiple regression analysis was performed to measure the concurrent effects of exogenous constructs (predicting factors) on endogenous construct (tactical skills). The results of coefficients explored that standardized coefficients of hockey coaches were ($\beta=.331$), $t(5.569)$, $p=.000$; team cohesion ($\beta=.330$), $t(5.636)$, $p=.000$; and motivational intensity ($\beta=.202$), $t(3.045)$, $p=.003$ on the performance (tactical skills) of elite players. All values of β , t and p of predicting factors showed the highly significant results in outcome variable.

Model 2

A multiple regression analysis was performed to measure the concurrent effects of exogenous constructs (predicting factors) on the endogenous construct (interpersonal skills). The results of coefficients examined that standardized coefficients of hockey coaches were ($\beta=.331$), $t(5.569)$, $p=.000$; team cohesion ($\beta=.330$), $t(5.636)$, $p=.000$; and motivational intensity ($\beta=.202$), $t(3.045)$, $p=.003$ on the performance (interpersonal skills) of elite players. All values of β , t , and p of predicting factors showed the highly significant results in outcome variable.

Model 3

A multiple regression analysis was performed to measure the concurrent effects of exogenous constructs (predicting factors) on communicational skills. Results of coefficients explored that standardized coefficients of coaches were ($\beta=.350$), $t(7.326)$, $p=.000$; team cohesion ($\beta=.190$), $t(4.027)$, $p=.000$; and motivational intensity ($\beta=.405$), $t(7.588)$, $p=.000$ on the performance (communicational skills) of elite players. All values β , t and p of predicting factors showed highly significant results in outcome variable.

Testing of the Path Model

Various regression analyses were made in relation to test the path model as hypothesis 5. First, all independent variables predicted the outcome variable (elite players' performance) to test the fully multiple regression path model. The results of multiple regression coefficients as shown in Table 2 depicted that all path coefficients were found positively significant as coaches $\rightarrow$ performance of elite players ($\text{Beta}=.38$, $t(11.12)$, $p=.000$); team cohesion $\rightarrow$ performance of elite field hockey players ($\text{Beta}=.23$, $t(6.48)$, $p=.000$); motivational intensity $\rightarrow$ performance of elite field hockey players ($\text{Beta}=.41$, $t(11.18)$, $p=.000$) respectively. Secondly, to test the hypothesized path model, motivational intensity and team cohesion were used as mediators whereas, coaches performed full IV and elite field hockey players' performance was acted as fully outcome variable. Moreover, team cohesion was also mediated by motivational intensity with coaches. However, the results of hypothesized path model were not found significant as per fit-indices. Because the root means square error of approximation (RMSEA) of hypothesized path model was .193, which was more than .10 that is considered insignificant. RMSEA considered a model good at $<.06$ and poor $>.10$ values respectively (Tabachnick&Fidell, 2013). Furthermore, the model must be considered good fit having RMSEA value $<.08$ (Hair, Black, Babin, & Anderson, 2010). Due to the reason, the hypothesized path model was revised as shown in Figure 5.

Table 2. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	-28.452	1.737		-16.384	.000		
1 Hockey Coaches	.233	.021	.378	11.121	.000	.367	2.724
Team Cohesion	.489	.076	.227	6.475	.000	.378	2.648
Motivational Intensity	.470	.042	.412	11.177	.000	.294	3.400

a. Dependent Variable: Performance of Field Hockey Players

Path Coefficients are Significant

The direct effect of coaches was removed from the revised path model for the purpose of fit indices as displayed in Figure 5. The first regression analysis was made between coaches (IV) and motivational intensity (DV). The result of Table 3 revealed that coaches → motivational intensity (Beta=.78, t=(21.30), p=.000) were considered positive and highly significant as shown in Figure 6 of revised path model.

The direct effect of coaches was removed from the revised path model for the purpose of fit indices as displayed in Figure 5. The first regression analysis was made between coaches (IV) and motivational intensity (DV). The result of Table 3 revealed that coaches → motivational intensity (Beta=.78, t=(21.30), p=.000) were considered positive and highly significant as shown in Figure 6 of revised path model.

Table 3. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	31.785	1.940		16.380	.000		
Hockey Coaches	.434	.020	.779	21.304	.000	1.000	1.000

a. Dependent Variable: Motivational Intensity

Path Coefficients are Significant

Table 4. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	6.111	1.294		4.723	.000		
1 Coaches	.071	.016	.261	4.552	.000	.393	2.544
Motivational Intensity	.279	.028	.569	9.932	.000	.393	2.544

The second regression analyses were made between coaches (IV) and motivational intensity (IV) and team cohesion (DV). The result of Table 4 revealed that hockey coaches → team cohesion (Beta=.26, t=(4.55), p=.000) and motivational intensity → team cohesion (Beta=.57, t=(9.93), p=.000) were considered positive and significant as also can be seen in Figure 5 of revised path model.

Table 5. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	-28.452	1.737		-16.384	.000		
1 Coaches	.233	.021	.378	11.121	.000	.367	2.724
Team Cohesion	.489	.076	.227	6.475	.000	.378	2.648
Motivational Intensity	.470	.042	.412	11.177	.000	.294	3.400

a. Dependent Variable: Performance of Elite Players

Path Coefficients are Significant

Path Model

Path analysis was utilized to investigate the relationship between the performance of elite field hockey players and hockey coaches, team cohesion, and motivational intensity variables to know the direct and indirect effect. Therefore, before the analysis of path model, the CFA was utilized to test all constructs individually.

CFA

CFA was used to evaluate the relationship between latent/unobserved variables and its associated items before testing the path model. The complete CFA models are made with minimum two or more factors along with two indicators per factor, which is essential for the identity of the model (Kline, 2011). The CFA, having factor loadings of the indicators more than .40, is considered significant for analyzing purposes (Stevens, 1996). An accurate CFA model stated its all indicators to evaluate a simple factor show factor loadings on the factor more than .70 and values among the factors should not extremely higher than .90 (Kline, 2011).

CFA for Elite Players Performance

CFA was employed to observe the measurement model of performance of field hockey players (PFHP) scale. CFA for elite players' performance was evaluated with Tactical Skills (TacticalSkills), Interpersonal Skills

(InterpersonalSkills), and Communicational Skills (CommunicationalSkills) as latent/unobserved constructs. The hypothesized First-Order CFA model for PFHP is demonstrated in Figure 1. Whereas, latent constructs are exposed in abbreviations, unobserved constructs are exposed in rectangles and error terms are exposed in circles.

CFA was tested through the good-fit indices, for instance, chi-square (cmin) divided (/) by degree of freedom (df) is known as cmin/df should be between 1-3, comparative fit index (CFI) above .90, Tucker-Lewis index (TLI) above .90, RMSEA less than .08 (Tabachnick&Fidell, 2013;Hair et al., 2010).

In terms of investigation that the indicators are determining the variable they are going to evaluate. Numerous approaches are present to form factor loadings(λ), average variance extracted (AVE), and construct reliability (CR) (Hair et al., 2010). The items of TS1 and TS3 for tactical skills, IS2 and IS4 for interpersonal skills, and CS2 for communicational skills were removed from the list for the absolute fit result of cmin/df, CFI, TLI, and RMSEA of the modified model. The λ ought to be significant at 0.5 and preferably 0.7 or greater. The AVE also ought to more than 0.5. Whereas the value of CR is 0.7 or higher suggested respectable reliability, the value of CR between 0.6 and 0.7 can be considered satisfactory (Hair et al., 2010). The item factor loadings of all three factors found higher than the minimum value of 0.5. The AVE of all the items found more than 0.5. Cronbach's Alpha coefficient of all variables was calculated with construct reliability (CR). The CR varied from 0.70 to 0.87 fulfilling the suggested requirements.

The results of the First-Order CFA of modified PFHP model; results [cmin=18.165; df=9, while, cmin/df=2.018, and $p<.033$] found statistically significant along with other statistical indexes also indicated a good fit, for instance, CFI=0.992, TLI=0.982, and RMSEA=0.059.

Figure 1. First-Order CFA of the Modified Performance of Hockey Players Model

The items factor loadings of all three factors were found higher than the minimum level of 0.5 and AVE of all the items found more than 0.5. The Table also displays that CR varied from 0.61 to 0.83 fulfilling the suggested requirements. Therefore, the results are supported for the modified performance of elite players measurement model.

CFA for Hockey Coaches (HC)

CFA was conducted to examine the measurement model of the hockey coaches (HC) scale. CFA for HC was evaluated with coach characteristics (CCharacteristics), coach expertise (CExpertise), and coach leadership (CLeadership) as unobserved/latent constructs. The hypothesized First-Order CFA for modified HC model is demonstrated in Figure 2. Whereas, latent constructs are exposed in abbreviations, unobserved constructs are exposed in rectangles and error terms are exposed in circles.

CFA was performed for modified coaches HC) model to evaluate the relationship between unobserved constructs and its associated items. The items CC10 of coach characteristics, CE1 of coach expertise, and CL1, CL8, CL9 of coach leadership were removed from the list for the absolute fit result of cmin/df, CFI, TLI, and RMSEA of the modified model. Figure 2 displays the result of the First-Order CFA of modified HC model. Though, results [cmin=378.584, df=255, while cmin/df=1.485, $p<.000$] found more statistically significant, particularly, other statistical indices CFI=0.971, TLI=0.966, and RMSEA=0.041 indicated a very good fit model after the modification.

All λ , R², AVE, and CR values were considered significant as shown in modified coaches. The items λ of all three constructs were found higher than the minimum level of 0.5 along with the AVE of all the items were also found higher than the minimum level of 0.5. The CR varied from 0.90 to 0.91 fulfilling the suggested requirements. Therefore, the results highly proposed the coach characteristics, coach expertise, and coach leadership in the existence of hockey coaches.

Figure 2. First-Order CFA of Modified Hochkey Coaches (HC) Model

CFA for Team Cohesion (TC)

CFA was conducted to examine the model of the team cohesion (TC) construct. CFA for TC was evaluated with personal factors (PersonalFactors) and team factors (TeamFactors) as latent constructs. The hypothesized First-Order CFA model for the TC is demonstrated in Figure 3. Whereas, latent constructs are exposed in abbreviations, unobserved constructs are exposed in rectangles, and error terms are exposed in circles.

CFA was made on two-factor of TC model to evaluate the association between unobserved constructs and its associated items. However, the results [$\chi^2=17.564$; $df=13$, while $\chi^2/df=1.351$] were found statistically significant. Moreover, the other statistical indexes also indicated a very good-fit model with CFI=0.993, TLI=0.988, and RMSEA=0.034 values.

Figure 3. First Order CFA of Modified Team Cohesion (TC) Model

The standardized loadings specified that PF3 ($\lambda=.76$) and TF1 ($\lambda=.87$) respectively ensured the maximum contribution to the unobserved construct of TC. Moreover, the squared multiple correlation (R^2) have

a maximum ranging value of .75 of the constructs. While, the construct reliability was also found in good ranges .76 to .81. Therefore, the excellent fit results are supported for the modified team cohesion measurement model.

CFA for Motivational Intensity (MI)

CFA was conducted to examine the measurement model of the motivational intensity (MI) scale. CFA for MI was evaluated with goals for practice (GPractice), practice resources (PResources), and reinforcement for achievements (RAchievements) as unobserved/latent constructs. The hypothesized First-Order CFA model for MI is shown in Figure 4. Whereas, latent constructs are exposed in abbreviations, unobserved constructs are exposed in rectangles, and error terms are exposed in circles.

In terms of investigation that the indicators are determining the variable they are going to evaluate. The item λ of all three constructs were not found absolute, excluding factor loadings of GP3, GP4, and GP5 having very low of .01, .24, and .09 values respectively while GP7 have very high loading .94, from goals for practice whereas RA1 and RA3 are having loadings of .29 and .22. Furthermore, GP3, GP4, GP5, and GP7 were to eliminate from the list of GP items along with RA2 and RA3 items for good fit indices of the model. The AVE of all three items was also found below than 0.5 having values .48, .41, and .37 AVE values of the construct. Cronbach's Alpha coefficient of all variables was calculated with construct reliability (CR). However, the CR highly varied from 0.72 to 0.84 fulfilling the suggested requirements.

The result of the First-Order CFA of modified MI model; results [$\chi^2=91.485$, $df=37$, while, $\chi^2/df=2.473$, $p<0.000$] found statistically significant along with the other statistical indexes also specified a very good-fit model with CFI=0.965, TLI=0.948, and RMSEA=0.071 values in Figure 4.

The Loading (λ), R², and CR fulfilled the suggested significant requirements. The χ^2/df , CFI, TLI, and RMSEA having the values of 2.473, 0.965, 0.948, and 0.071 respectively, specified MI a good fit index. Hence, the result was secured good fit indexes for modified motivational intensity measurement model.

Figure 4. First Order CFA of Modified Motivational Intensity (MI) Model

Contribution of Hockey Coaches in Conjunction with Motivational Intensity and Team Cohesion for Performance of Elite Players in Testing the Path Model

Grounded on CFA results, the structural model also signifies measured covariance between promising couple of every observed construct: single arrows ($\rightarrow$) from one of the observed construct to other observed constructs indicate direct effects known as path coefficients which are also understood as regression coefficients in multiple regressions, single arrows from the error and disturbance relations to their specific constructs, and two-headed arrows linking the observed constructs to know the relationships between two constructs (Kline, 2011). The graphical picture of the CFA of hypothesized revised path model is accessible in Figure 5.

There are two types of structural models known as recursive and non-recursive (Kline, 2011). Recursive models have two characteristics; their disturbances do not correlate, and causal effects remain unidirectional. On the other hand, recursive model has another type known as partially recursive modes with bow-free pattern of disturbance correlations that can be treated in the path analysis just like recursive models.

The structural model is evaluated by portraying the contribution amongst the constructs (independent, mediators, and dependent variables) grounded on their CFA. The good-fit indices for path model indicate that the model is absolute fit and highly significant if Chi-square=.000, Normal Chi-square=1 to 3, CFI/TLI=>.90 to >.95, RMSEA=Good at <.06 and Poor at >.10.

The good-fit indexes for the revised full path model (Figure 5) were significantly enhanced and measured to be good from hypothesized path model. Moreover, in contrast to model 1, the cmin (chi-square) has thrown down to 8.314 (from 119.88) with improvement, the df has also decreased to 5 better than the previous (from 10), cmin/df improved a lot decreased from 11.988 to 1.663, the CFI has noticeably improved to 0.999 (from 0.964), TLI jumped to 0.995 (from 0.924), and RMSEA has thrown down to 0.047 (from 0.193) with good fit indexes. The indexes from revised path model delivered a sign of goodness-of-fit of the data as can be seen in Figure 5. Therefore, good-fit indices for revised path model revealed that the model is absolute fit and highly significant according to good fit indices.

Table 6. Parameter Estimates of Revised Path Model

		Path coefficient (β)	C.R.	p-value
HCoaches	---> MIntensity	.780	21.421	***
HCoaches	---> TCohesion	.256	4.529	***
MIntensity	---> TCohesion	.574	10.153	***
MIntensity	---> PerformanceFHP	.412	11.217	***
TCohesion	---> PerformanceFHP	.227	7.013	***
PerformanceFHP	---> TSkills	.771	21.024	***
PerformanceFHP	---> ISkills	.946	55.448	***
PerformanceFHP	---> CSkills	.980	53.351	***

Note: *** $p < 0.001$; C.R. = critical ratio. HCoaches (Hockey Coaches); MIntensity (Motivational Intensity); TCohesion (Team Cohesion); PerformanceFHP (Performance of Field Hockey Players); TSkills (Tactical Skills); ISkills (Interpersonal Skills); CSkills (Communication Skills)

The results of Table 6 presented the path coefficients, critical ratio, and p-values to know the significance of the revised path model. The results indicated that hockey coaches to motivational intensity have a positive path coefficient (.78) with highly significant $p < 0.001$. However, the other constructs as hockey coaches to team cohesion (.26), motivational intensity to team cohesion (.57), motivational intensity to elite field hockey players' performance (.41), team cohesion to elite field hockey players' performance (.23), and field hockey players' performance to tactical skills (.77), elite field hockey players' performance to interpersonal skills (.95), and elite field hockey players' performance to communicational skills (.98), all constructs have positive path coefficients (contributions) and all were found significant with $p < 0.001$ as shown in Table 6.

Whereas, results of Covariances of the revised path model indicated a positive and highly significant relationship (.73) existed between elite field hockey players' performance and hockey coaches. However, the association between tactical skills and communicational skills (-.30) was found negative and significant. Another relationship between tactical skills and interpersonal skills (-.24) was also exposed negative but found significant. The relationship (.29) between communicational skills and interpersonal skills was indicated positive and significant.

Figure 5. Revised Path Model: Path coefficients represent standardized estimates, $p < .05$
Multiple Regressions Models Representing Path Analysis Significance

In term of the measurement, Table 3 represents the results of multiple regressions in comparison to the results of path coefficients of the revised path model. The results of Table 3 revealed that hockey coaches → motivational intensity (Beta=.78, $t=21.30$, $p=.000$) was considered positive and significant as path coefficient of revised path model and can be seen in Figure 5.

The second regression analyses were made between hockey coaches (IV) and motivational intensity (IV) and team cohesion (DV). The result of Table 4 revealed that hockey coaches → team cohesion (Beta=.26, $t=4.55$, $p=.000$) and motivational intensity → team cohesion (Beta=.57, $t=9.93$, $p=.000$) were considered positive and significant as path coefficients of revised path model also confirmed values as shown in Figure 5.

Furthermore, as shown in Table 5, the third regression analyses were made between team cohesion and motivational intensity (two exogenous variables), and the performance of elite field hockey players (one endogenous variable) only to check the direct effect of team cohesion (Beta=.23, $t=6.48$, $p=.000$) and motivational intensity (Beta=.41, $t=11.18$, $p=.000$) on elite field hockey players' performance that were considered positive and significant according to path coefficients of revised path model as shown in Figure 5.

Finally, according to revised full path model, the results of the model indicated that the path coefficient of hockey coaches affected .78 to motivational intensity and team cohesion to .26, whereas, team cohesion and motivational intensity affected to elite field hockey players' performance .23 and .41 respectively. All path coefficients were found significant at the 0.01 level. Regression analyses were found highly significant as like path analysis. The results of regression analyses and path analysis were found highly significant and similar. All the hypotheses were accepted and proved at their significant level ($p=0.01$).

Discussions

The findings of existing research revealed that hockey coaches had medium association with players' performance of national field hockey game however, the relationship was established significant. Coaches altogether would be lenient, reputable teachers, considerate, and in-depth coaching approach (Naylor, 2006). Moreover, the attractiveness of a respected coach has also to train, hearten, and sanction players to provide them opportunities for the specific progress and development. According to existing results, hockey coaches highlighted optimistic and significant relationship with elite players' performance than team cohesiveness and motivational intensity in existing research. One key reason indicated through the findings was that the existing hockey coaches may have less understanding with players to convey their expertise and dexterities during players' training sessions. Coaches may adopt practical approaches of less or high value of coaching towards players. Furthermore, field hockey players are also mindful with the point that coach commitment and support make sure the performance of players with strengthening their skills. This type of experience significantly improves the performance of field hockey players at elite level. Keeping in view the progress practically, numerous researchers have been measured diverse coaching terminologies grounded on practical measures (Leite, Vaz., Macas, & Sampoio, 2009; Keh & Yu, 2007; Kannekens, Elferink-Gemser, & Visscher, 2009).

Based on the finding, results indicated that team cohesiveness had positive relationship with the performance of players, however, the association was found medium and significant. Though, the cohesiveness among players is upraised to game ability comprising of anticipation and decision-making skills (Elferink-Gemser, Visscher, Lemmink, & Mulder, 2004). The reason may be that some of field hockey players play their personal game to show their abilities individually within the team and display their individual performance. This may be the reason that the players have less cohesiveness among themselves being a team. If players of the team are on same page, it is not only good for players but also beneficial for the whole team. The positive association between cohesion and team victory was reported (Mullen & Copper, 1994). Remarkably, a non-significant relationship between cohesion and team success was found (Landers & Luschen, 1974). The reason of non-significant relationship may be that most of the players have less communication among themselves and with the coach, and they have less use of interactive skills within the course of playing the game (Dobrescu, 2014). However, the coaches and team management should provide due consideration to the development of interactive and communicational skills not only for the better performance but also for the overall improvement of team cohesiveness. These results confirmed the findings in the light of former studies on team cohesion to performance of players (Eys et al., 2015; Alemu & Babu, 2012; Manning, 2007; Carron, & Chelladurai, 1981).

The findings of the present research revealed significant and optimistic association between motivational intensity and players' performance, however, the relationship was reported medium. Therefore, the findings revealed that the reinforcement/rewards may be very few by the coaches and the management on the achievements of field hockey players. The management may not reward the players with incentives, prizes, and job promotions at their victory. The reason for not performing well in field may not have any stimulation for the players. The results of study revealed that extrinsic motivation found positive links to players' performance (Chantal, Guay, Dobrev-Martinova, & Vallerand, 1996). Therefore, the mixture of these variables cannot be overlooked. However, the management should have to provide incentives/initiatives for the stimulation of field hockey players to develop the performance levels among players as well. The results illustrated that as much the players observed their coach to be helpful, their level of motivation for performing their sport movement was

strong-minded (Gillet, Vallerand, Amoura, & Baldes, 2010). Field hockey players' feedback may also be contemplative for developments as well as in emerging approaches. While, intrinsically motivated players are encouraged to perform either for the excitement or challenge involved instead of external stimulus, forces, or rewards (Ryan & Deci, 2000). Therefore, sport institutions/departments/units should remember that both field hockey coaches and players' contribution is needed to achieve the successes through this approach. The results verify the findings of prior studies (Dragos, 2014; Mouratidis, Vansteenkiste, Lens, & Sideridis, 2008; Amorose & Horn, 2000; Pelletier, Tuson, Fortier, Vallerand, Brikre, & Blais, 1995; Trninic et al., 2009).

Conclusion

The present research provides contribution of coaches, team cohesiveness, and motivational intensity to sports performance of elite hockey players of Pakistan. The findings of the present study revealed that sport coaches significantly and positively associated directly with sports performance and indirectly through the intervening constructs (team cohesiveness, and motivational intensity). It was proved by the results of the present research that the influence of direct (sport coaches) and indirect (team cohesiveness, and motivational intensity) constructs were also found significant through regression and path analysis.

The thrust of good coaching structure, excellent team collaboration, and high motivation intensity are still required to boost players' performance of Pakistani field hockey at both national and international levels. The sports authorities, sport associations, sport federations, and sports institutions should take serious steps to uplift the past statures and glories of the national game of Pakistan. The role of field hockey players would be counted central at grassroot, domestic, club, national, and international levels as well.

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