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Relationship between Imagery Use and Imagery Ability Towards Team Cohesion among Masum Athletes

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Abstract
Positive relationship has been determined between imagery use and team cohesion based on individual and team level perspectives from previous studies. However, not many investigated the combination of imagery use and imagery ability on team cohesion from an individual nor from the team perspective especially during the covid-19 pandemic season. Hence, this study investigates the relationship between imagery use and imagery ability on team cohesion among MASUM student athletes. A total of 215 MASUM student athletes from various sports participated in the study. A series of questionnaires were completed which are Group Environment Questionnaire, Sport Imagery Questionnaire-Team Sport and Sport Imagery Ability Questionnaire. Multiple regression analysis revealed that motivation general-mastery imagery, motivation general-arousal imagery, motivational specific imagery, skill imagery ability and goal imagery ability were significantly correlated to the dimensions of team cohesion. About 63% of team cohesion is explained by the imagery use dimensions. These dimensions are individual attraction- task team cohesion (39% of the variable), group integration- social team cohesion with 35% and group integration-task with 42%. The finding recommends cognitive and motivational elements from imagery use to be highlighted on team sports to promote athlete's team cohesion.
Keywords: Imagery Ability, Imagery Use, Masum Athletes, Team Cohesion, Team Sport.

Introduction

When it became obvious that this issue of *Pertanika* was going to include a lot of content about the effects of COVID-19 on the research community, the researcher decided to make this contribution in the area of sports psychology. Team cohesion in sport has been used for many decades as it seems to increase sports performance (Adegbesan, 2010; Carron et al., 1985; Curtin, McEwan & Beauchamp, 2014; Munroe-Chandler et al., 2012; Sabin & Marcel, 2015; Sabin & Marcel, 2014; Shearer, Holmes & Mellalieu, 2009). Sports teams have a high tendency in the use of team cohesion as it is needed to complete a certain task. Team cohesion is a term used when a group is united until the end in pursuing a similar goal or objective (Salas, Grossman, Hughes, & Coultas, 2015) usually in a game or competition. In general, task and social cohesion are the two types of team cohesion. The former or task cohesion is in effect when a common team goal is achieved from the displayed team work (Richardson, 2013), while social cohesion is in effect when each individual in the team interacts positively with each other (Richardson, 2013). Collectively, the combination of these qualities would bring success to a team in play. However, problems may arise in most sports teams, which problems can be originated from various factors, and the most common factor is mental distress (Naji et al., 2020). Mental distress is often regarded as a negative consequence from not being successful in coping with high physical and physiological demands during a competition (Justine, et al., 2020). Furthermore, this is much more relevant for all of the lost training time caused by the COVID-19 crisis. Hence, team cohesion is often seen as a more positive outlook for a team in order to overcome such a mental distress in order to achieve success. Mental distress, such as anxiety can be overcome by many interventions or mental help-strategies, which will increase sports performance (Samsudin et al., 2019). Self-talk and mental imagery are two methods that can be utilized by athletes in increasing their focus and self-awareness during a competition. Imagery is a sensory-related experience that happens without the help of any external stimuli (Schwanhausser, 2009), of which it uses the motivational and cognitive functions. By creating real life images both in motivation- and cognitive-related functions during a game, the athlete could create possible ideas on the outcome of the competition. Dev et al. (2009) found that different cognitive effects lead to a different successful performance on the field.

The two imagery constructs used in the study were imagery ability and imagery use. Imagery ability is an ability of an individual in performing a vivid and controllable imagery, and also retaining the visuals for a sufficient desired time (Morris et al., 2005), which is important to achieve success in sport. Imagery use is the ability to use imagery in achieving a variety of cognitive, behavioral, and affective changes (motivational) (Hardy, Hall & Carron, 2003). There are many theories and models that are used in imagery, such as psycho-neuromuscular theory (Jacobson, 1930), symbolic-learning theory (Sackett, 1934), the information processing model of imagery (Farah, 1984), the image somatic meaning model (Ahsen, 1984), the bio-informational theory (Lang, 1978) and body image perception (Dev et al., 2009). However, in sports, the imagery integrative model (Guillot & Collet, 2008) serves as a great imagery theory that many other theories and model, such as the sport imagery ability model (Watt, Morris, & Anderson, 2004), conceptual framework of imagery (Paivio, 1985), and the PETTLEP model (Holmes & Collins, 2001) serve as guides to follow.

The conceptual framework of imagery serves as the basic integration of cognition and motivation that operates on a common or a tailored quantum. Therefore, options in the use of imagery emerge in many sub-divisions or classifications, such as cognitive specific (e.g., movements), cognitive general (e.g., strategies), motivational specific (e.g., goals), and motivational general (e.g., motivation, anxiety). This classification was further extended to motivational general–affective (e.g., arousal and anxiety) and motivational general–mastery (e.g. mental toughness, self-confidence) by Hall, Mack, and Paivio (1998). Imagery use and ability are deemed as important as they can enhance outcomes in terms of skills and strategies or even the regulation of emotions, thoughts, and anxiety. Hence, apprehending relationships between both constructs and outcomes can definitely result in the sport success.

Literature Review

In terms of past literature regarding imagery use and ability, it was found that imagery ability has a positive relationship with imagery use and the former explained 20 % – 41 % of the variance in the imagery use among athletes (Gregg et al., 2011; Williams & Cumming, 2012). Moreover, both of these imageries were found to positively associated with sports performance (Simonsmeier & Buecker, 2016), and in the regulation of competitive anxiety (Vadocz et al., 1997). In fact, athletes with good imagery ability showed a greater improvement in performance through imagery intervention compared to athletes with a poor imagery ability (Robin et al., 2007). Furthermore, imagery ability is also directly associated with motivational outcomes, such as trait confidence, challenge taking, and threat appraisal tendencies (Williams & Cumming, 2012). However, imagery ability was not found as a moderator nor a mediator between imagery use and performance (Gregg & Hall, 2006; Nordin & Cumming, 2008).

Even though the effects of imagery interventions in sports contexts have been examined comprehensively, only limited research has considered imagery in influencing group factors that affect team performance (Shearer, et al., 2009), such as team efficacy and team cohesion (Curtis et al., 2015). In the past, many researches have primarily focused on the influence of team cohesion on imagery (Hardy et al., 2003; Hall, Mack, Paivio & Hausenblas, 1998; Terry et al., 2000) rather than vice versa. Imagery is one of the well-known mental training technique used by athletes to enhance sports performance (Nordin & Cumming, 2008; Williams, 2011; William & Cumming, 2013). Gould, Flett, and Bean (2009) state that team cohesion and efficacy have to be considered in team sports in developing the team mental preparation (imagery) procedures. That is why imagery within team sports is important. Imagery is one of the factors that can influence team cohesion to gain success in team performance. The more athletes use imagery in a play or competition, the more cohesive the team is and the better the team performance will be. Studies have shown that team cohesion positively predicts team performance, and team performance positively predicts team cohesion (Filho, Dobersek, Gershgoren, Becker, & Tenenbaum, 2014). In other words, if a team is more cohesive, it is more likely to perform well.

Carron's conceptual framework is the basis for the development of Group Environment Questionnaire to measure team cohesion (Adegbesan, 2010). The result from the previous research has shown that cohesion can increase a more positive mood state (Terry, Carron, Pink, Lane, Jones, & Hall, 2000) and increase imagery use (Hardy, Hall, & Carron, 2003). Thus, the relationship between team cohesion and individual cognitions (imagery) has been investigated in a various aspect in the sports setting (Curtin et al., 2015; Bahrami, Mohammadipou, Sivitsky, & Saremi, 2012; Adegbesan, 2010). Since only a few studies have examined the potential influence of imagery ability, imagery use, and team cohesion together (William & Cumming, 2013), therefore, the current study investigated the relationship between imagery ability and imagery use on team cohesion among MASUM student athletes. The researcher hypothesized that the imagery use and imagery ability would correlate with team cohesion. In addition, Soh et al, (2009) found different physical profiles and gender may have influence on the athletes' performances. Therefore, this study also attempted to investigate if there would be differences between genders on imagery use, imagery ability, and team cohesion. In addition, the best predictor for team cohesion among all dimensions was also investigated.

Methodology

Participants

This study is a correlational study, of which the respondents selected in this study were those who participated in the Malaysian University Sports Council (MASUM) games at a public university in Malaysia. The sampling from this group represented their respective public universities in Malaysia in many different sports, such as rugby, archery, taekwondo, squash, *sepak-takraw*, lawn ball, beach volley ball, and chess. About 215 MASUM student athletes were recruited from these sports using the proportionate stratified sampling technique. The sample size of the study complied with the Cohen and Cochran sample size determination technique.

Research Instruments

There were three instruments used for this research. All instruments for this study were translated back to back, meaning that the original version of the instruments, which was all in English were translated into Malay, and were translated back into English with the context of the Malaysian population. Thus, each item of all the instruments were translated into two languages, namely English and Malay. A written permission for each instrument was obtained from all authors of the instruments. The Group Environment Questionnaire (GEQ; Eys et al., 2007; Mughal, 2019) was used to measure the four-team cohesion dimension; Group Integration-Task, GIT (5), Individual Attraction to the Group-Task, ATGT (4), Group Integration-Social, GIS (4), and Individual Attraction to the Group-Social*,* ATGS (5). The questionnaire consists of 18 positively worded items, which were rated on a 5-point Likert scale, of which 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, and 5 = strongly agree. The scoring of this instrument was based on the summative of each item based on the subscales and then an average was taken for individuals and team subscales. The Cronbach's alpha for GEQ reported by Curtin et al. (2015) and Eys et al. (2007) ranged from 0.74 to 0.86, while for this study, it was 0.86. Based on the GEQ subscales, the Cronbach alpha reliability for GIT is 0.69, ATGT 0.65, GI-S 0.68, and ATGS 0.63.

The second questionnaire is Sport Imagery Questionnaire-Team Sport (SIQTS). SIQTS is designed by Curtin et al. (2015) to measure the imagery use by the athlete from the perspective of an individual and team as compared to the original version of SIQ by only observing the individual’s perspective. The questionnaire has a 5-point Likert scale as well, ranging from 1 (never), 2 (seldom), 3 (frequently), 4 (often) to 5 (always), with five subscales imagery functions, which are Motivational Specific (MS), Motivational General - Mastery (MGM), Motivational General - Arousal (MGA*),* Cognitive Specific (CS), and Cognitive General (CG). The scoring of this instrument was based on the average of the summative of each item based on the individual subscales. The SIQTS in this study has formed a proper internal reliability with alpha coefficients of 0.92 that was higher than that of the previous study conducted by Curtin et al. (2015) and other studies, which reported the alpha coefficients ranging from .70 to .89. Meanwhile, the Cronbach alpha reliability for the specific subscales were CS α = .71, CG α = .59, MS α = .67, MGA α = .61, and MGM α = .70.

The third instrument was the Sports Imagery Ability Questionnaire (SIAQ; Williams & Cumming, 2014), which consists of 15 items of five dimensions that measure the athletes’ sports imagery ability in terms of cognitive and motivational skills across the components of the model. It is a 7-point Likert scale instrument, ranging from 1 (very hard to image) to 7 (very easy to image). The scoring of SIAQ can be done in two different ways: 1) Separate subscales of imagery ability, in which the items are averaged to form five separate subscales as Skill Imagery Ability (SKIA), Strategy Imagery Ability (STIA), Goal Imagery Ability (GIA), Affect Imagery Ability (AIA), Mastery Imagery Ability (MIA), and 2) as a single global measure score of sport imagery (GSIA), in which all 15 items are averaged to produce one score reflective of sport imagery ability. The single global SIAQ reliability in this study has formed reliable internal reliability with alpha coefficients of 0.92 that is in line with that of the previous study by Williams and Cumming (2014). Moreover, the reliability of SIAQ based on the subscales were SKI (α = .78), SIA (α = .74), GIA (α = .75), AIA (α = .71), MIA (α = .74).

Data Collection and Analysis

An informed consent was obtained from all individuals who participated in this study. The permission of data collection was granted by the MASUM commission before the data collection procedure was carried out. The data collection was conducted for two weeks during the first phase of MASUM game period, which was in the month of August. Since all data seemed to be normally distributed from the exploratory data analysis (Kolmogorov-Smirnov test; GEQ, $p = 0.067$, SIQTS, $p = 0.08$, SIAQ, $p = 0.12$), the parametric statistical analysis was used, which was the T-independent test for comparison of gender, Pearson correlation for the relationships of the independent and dependent variables, and multiple regression analysis to predict the outcome of the various response variables. The IBM Statistical Package for Social Science Statistics (version 23.0) software was used for the analysis of the data. Apart from that, the descriptive statistics was also reported in mean and standard deviation. The significant level was set at $p < .01$. The respondents' profiles are shown in Table 1.

Problem statement of this study is lack of research and empirical result on which imagery dimensions and types that predict team cohesion among team sport athletes in Malaysia. This is also very much needed with the absence of training during the COVID-19 pandemic crisis. Research objective for this study is to investigate imagery dimensions from imagery use and ability that predict team cohesion as perceived by MASUM team sport athletes in Malaysia. Research questions for this study include: (a) Are there any differences between genders on imagery use, imagery ability and team cohesion? (b) Are there positive correlations between imagery use, imagery ability and team cohesion? (c) Which is the most important imagery predictor for team cohesion? Last but not least, knowledge contribution of this study includes: (a) provides understandings on what and how imagery predict team cohesion in sport from a Malaysian context, (b) enable coach and project managers to focus on activities or tasks that can improve imagery use and imagery ability as these team outcome factors can impact the overall team cohesion in sport.

Results

From the population of 1017, a total of 215 respondents, of which 62.8 % ($n = 135$) was males and 37.2 % ($n = 80$) was female athletes who were recruited for the study. Most of the respondents were 21 years old (23.7 %, $n = 51$), followed by 22 years old (20.9 %, $n = 45$), and 23 years old (20.9 %, $n = 45$). The oldest participant was 27 years old (9 %, $n = 2$) and the youngest was 18 years old (2.8 %, $n = 6$). In short, the age range of the participants is from 18 to 27 years old ($M = 21.91$, $SD = 1.71$). Since the current study involved different sports, the proportionate stratified sampling technique was used and the distribution of sports are as follows; chess 6.0 %, $n = 13$, *sepak-takraw* 18.1 %, $n = 39$, rugby 13.0 %, $n = 28$, taekwondo 12.1 %, $n = 26$, lawn balls 7.4 %, $n = 16$, archery 28.8 %, $n = 62$, and beach volleyball 14.4 %, $n = 31$. Most participants were from the archery team; from both team and individual categories. This is followed by *sepak-takraw* in the team category, and the least number of participants was from chess, which was also in the team and individual categories. The participants from beach volleyball, rugby, and lawn balls were from the team category only, while taekwondo had both individual and team categories.

In terms of the competitive level amongst MASUM athletes, most of the respondents were at the national level (38.6 %, n = 83), followed by state level (28.8 %, n = 62), and international level (14.9%, n = 32). The percentages of respondents at the district and school levels are 5.6 % and 2.8 %, respectively. Besides that, years of playing experience in sports were also obtained with mean years of playing experience in the specified sport of 8.17 ± 3.68 years. As shown in the table, most of the respondents had a range of between 8 to 11 years (37.8 %, n = 81) on playing experience in sports that they have been involved. This is followed by the range of 4 to 7 years at 33.4 % (n = 72) and the range 12 to 15 years at 15.3 % (n = 33). Furthermore, the athletes' years of playing experience in sports that are less than 3 years is 11.2 % (n = 24) and the ones range between 16 to 19 years is 2.3 % (n = 5).

Table 1
Respondents Profile

Variables	N	%	Mean	SD
Male	135	62.8		
Female	80	37.2		
Sports				
Chess	13	6.0		
Takraw	39	18.1		
Rugby	28	13.0		
Taekwondo	26	12.1		
Lawn balls	16	7.4		
Archery	62	28.8		
Beach volleyball	31	14.4		
Competitive level				
Local/ school	6	2.8		
District	12	5.6		
State	62	28.8		
National	83	38.6		
International	32	14.9		
Others	20	9.3		
Years of experience			8.17	3.68
0 - 3	24	11.2		
4 - 7	72	33.4		
8 - 11	81	37.8		
12 - 15	33	15.3		
16 - 19	5	2.3		

Differences between gender in team cohesion (GEQ), imagery use (SIQ-TS), imagery ability (SIAQ), and its subscales among MASUM student athletes

No significant difference was found between genders in team cohesion (t (213) = 0.05, p > .01), imagery use (t (213) = 1.17, p > .01), and imagery ability (t (213) = 1.09, p > .01) (refer to Table 2). Furthermore, there is only a significant difference (t = 2.63, p < 0.01) found between genders in strategy imagery ability (STIA) in terms of the comparison in the subscales or each construct.

Table 2
Independent T-test analysis on team cohesion (GEQ), imagery use (SIQ-TS), imagery ability (SIAQ) and its subscales on gender (N=215)

Variables	Gender	N	M	SD	df	t	p
Team cohesion	M	135	4.39	0.34	213	0.05	.96
	F	80	4.38	0.35			
Imagery use	M	135	4.26	0.36	213	1.17	.24
	F	80	4.20	0.35			
Imagery ability	M	135	5.18	0.77	213	1.09	.28
	F	80	5.06	0.80			
GEQ							
ATG-S	M	135	4.40	0.38	213	0.51	.61
	F	80	4.37	0.44			
ATG-T	M	135	4.41	0.42	213	-0.07	.95
	F	80	4.42	0.44			
GI-S	M	135	4.32	0.46	213	0.46	.65
	F	80	4.29	0.53			
GI-T	M	135	4.40	0.40	213	-0.75	.45
	F	80	4.44	0.40			
SIQTS							
CS	M	135	4.21	0.41	213	1.52	.13
	F	80	4.12	0.45			
CG	M	135	4.23	0.41	213	1.55	.12
	F	80	4.13	0.43			
MS	M	135	4.31	0.45	213	0.21	.83
	F	80	4.30	0.45			
MG-A	M	135	4.27	0.41	213	1.74	.08
	F	80	4.16	0.42			
MG-M	M	135	4.33	0.41	213	0.04	.97
	F	80	4.33	0.44			
SIAQ							
SKIA	M	135	5.13	0.93	213	0.66	.51
	F	80	5.03	0.94			
STIA	M	135	5.10	0.86	213	2.63**	.009**
	F	80	4.78	0.84			
GIA	M	135	5.09	0.96	213	-0.20	.98

	F	80	5.09	1.06			
AIA	M	135	5.33	0.85	213	0.62	.53
	F	80	5.25	0.84			
MIA	M	135	5.25	0.88	213	0.96	.34
	F	80	5.13	0.94			

Notes: **GEQ:** Individual attractions to the group-social (ATG-S); Individual attractions to the group-task (ATG-T); Group integration-social (GI-S); and Group integration- task (GI-T); **SIQ-TS:** Cognitive Specific (CS); Cognitive General (CG); Motivational Specific (MS); Motivational General- Arousal (MG-A); and Motivational General- Mastery (MG-M); **SIAQ:** Skill Imagery Ability (SKIA); Strategy Imagery Ability (STIA); Goal Imagery Ability (GIA); Affect Imagery Ability (AIA); Mastery Imagery Ability (MIA). **$p < .01$

Correlation between Imagery Use, Imagery Ability and Team Cohesion dimensions (subscales)

Based on Table 3, there is a significant positive relationship with the r values ranging from .24 (p < .01) to .90 (p < .01) between SIQTS subscales (imagery use) and GEQ subscales (team cohesion). These relationships are considered as from weak to strong relationships. The Pearson correlation analysis also indicates that the r values range from .15 (p < .05) to .25 (p < .01) for SIAQ subscales (imagery ability) and GEQ subscales. These weak relationships provide the support that the SIAQ and the GEQ share a relationship, but very weak in strength. All the SIAQ subscales are correlated except for GIA (p > .01), which shows that there is no significant correlation with any GEQ subscale. For STIA, only ATG-S and ATG-T are significantly correlated with the GEQ subscales. Lastly, positive weak to moderate correlation with the r values ranging from .17 (p < .01) to .43 (p < .01) are seen for SIAQ subscales and SIQ-TS subscales. All the SIAQ and SIQ-TS subscales are correlated except for STIA and MS.

Prediction of Team Cohesion between Imagery Use and Imagery Ability

A multiple regression analysis was performed to predict the dimensions of team cohesion, which are ATGT, ATGS, GIS, and GIT as the outcomes corresponding to the dimensions of imagery use (CS, CG, MS, MGA, and MGM) (Table 4 and Figure 1). As a whole, the regression model is statistically significant for the predictive capability in predicting team cohesion with F (10, 204) = 16.845, p < 0.001, R^2 = 0.452. Moreover, the other regression model for the individual dimensions of team cohesion is statistically significant as well. The first dimension of team cohesion, which is ATGS is significant at F (10, 204) = 4.00, p < .001, R^2 = 0.164) having only the MGA as the significant predictor (β = 0.23, p < .01). The second dimension of team cohesion, which is ATGT is statistically significant at F (10, 204) = 12.87, p < .05, R^2 = 0.39, explaining 39 % of the variance in ATGT that the independent variables explain collectively. The imagery use dimensions, MS (β = 0.25, p < .01), and MGM (β = 0.28, p < .01) are shown to be significant predictors of ATGT cohesion, while the imagery ability subscale, GIA (β = -0.357, p < .001) is also the predictor of ATGT cohesion. The third dimension, which is GIS is also statistically significant at F (10, 204) = 11.48, p < .01, R^2 = 0.35. The imagery use dimension, MGA (β = 0.32, p < .05) is the significant predictor of GIS team cohesion.

Table 3
Correlations between GEQ subscales, SIQTS subscales, and SIAQ subscale

SCALE	**GEQ**				**SIQ-TS**					**SIAQ**				
Scale	1	2	3	4	5	6	7	8	9	10	11	12	13	14
GEQ														
1. ATG-S	-													
2. ATG-T	.54**	-												
3. GI-S	.44**	.46**	-											
4. GI-T	.51**	.55**	.66**	-										
SIQ-TS														
5. CS	.32**	.42**	.49**	.50**	-									
6. CG	.29**	.32**	.47**	.48**	.73**	-								
7. MS	.24**	.48**	.38**	.45**	.63**	.45**	-							
8. MG-A	.36**	.43**	.54**	.54**	.68**	.69**	.48**	-						
9. MG-M	.28**	.50**	.37**	.52**	.63**	.57**	.61**	.58**	-					
SIAQ														
10. SKIA	.19**	.25**	.19**	.24**	.34**	.27**	.25**	.20**	.20**	-				
11. STIA	.19**	.15*	.08	.09	.35**	.33**	.12	.20**	.21**	.68**	-			
12. GIA	.11	.07	.10	.12	.39**	.26**	.27**	.17**	.22**	.70**	.66**	-		
13. AIA	.22**	.25**	.23**	.21**	.39**	.31**	.29**	.31**	.31**	.73**	.36**	.63**	-	

Notes: **GEQ:** Individual attractions to the group-social (ATG-S); Individual attractions to the group-task (ATG-T); Group integration-social (GI-S); and Group integration- task (GI-T); **SIQ-TS:** Cognitive Specific (CS); Cognitive General (CG); Motivational Specific (MS); Motivational General- Arousal (MG-A); and Motivational General- Mastery (MG-M); **SIAQ:** Skill Imagery Ability (SKIA); Strategy Imagery Ability (STIA); Goal Imagery Ability (GIA); Affect Imagery Ability (AIA); Mastery Imagery Ability (MIA). **$p < .01$, *$p < .05$

Lastly, the regression model for the cohesion dimension GIT is statistically significant at F (10, 204) = 14.94 ($p < .01$, $R^2 = 0.42$), accounting for 42 % of the variance in GIT that the independent variables explain collectively. The imagery use dimension, MGA (β = 0.26, p < .01) and MGM (β = 0.24, p < .01) are significant predictors of GIT cohesion. The imagery ability subscales of SKIA (β = 0.34, p < .01) is also a significant predictor of GIT cohesion (Table 4 and Figure 1). Besides that, the total analysis of construct (GEQ), image use (SIQTS: MS, MGA, and MGM) seems to explain 62.7 % of team cohesion, which is a better predictor compared to imagery ability (Figure 1).

Table 4
Summary of regression analyses for imagery variables related to team cohesion.

Cohesion variables	**Imagery variables**	**B**	**β**	**t**	**p**
GEQ	SIQTS	0.36	0.63	10.82	0.00
	SIAQ	0.003	0.07	0.09	0.92
ATG-S	CS	0.07	0.07	0.61	0.11
	CG	-0.01	-0.01	-0.11	0.10
	MS	0.04	0.05	0.49	0.08
	MG-A	0.22	0.23	2.35	0.09
	MG-M	0.05	0.05	0.52	0.09
	SKIA	0.02	0.05	0.44	0.05
	STIA	0.05	0.10	1.07	0.05
	GIA	0.06	-0.16	-1.56	0.04
	AIA	0.02	0.05	0.45	0.05
	MIA	0.03	0.07	0.67	0.05
ATG-T	CS	0.10	0.01	0.96	0.10
	CG	-0.17	-0.16	-1.83	0.09
	MS	0.24	0.25**	3.20**	0.00
	MG-A	0.18	0.17	2.02	0.09
	MG-M	0.28	0.28**	3.40**	0.00
	SKIA	0.13	0.28**	2.80**	0.03
	STIA	0.03	0.06	0.68	0.06
	GIA	-0.15	-0.36**	-4.06	0.00
	AIA	0.01	0.01	0.10	0.05
	MIA	0.02	0.04	0.43	0.05
GI-S	CS	0.22	0.19	1.86	0.12
	CG	0.14	0.12	1.30	0.11
	MS	0.06	0.06	0.73	0.09
	MG-A	0.37	0.32**	3.66**	0.01
	MG-M	-0.03	-0.03	-0.32	0.10
	SKIA	0.08	0.16	1.49	0.07
	STIA	-0.10	-0.17	-1.94	0.06
	GIA	-0.06	-0.12	-1.35	0.05
	AIA	0.01	0.02	0.19	0.06
	MIA	0.03	0.06	0.59	0.05
GI-T	CS	0.08	0.09	0.89	0.09
	CG	0.09	0.09	1.09	0.08

MS	0.08	0.09	1.14	0.07
MGA	0.25	0.26**	3.14**	0.01
MGM	0.23	0.24**	3.04**	0.01
SKIA	0.15	0.34**	3.44**	0.01
STIA	-0.08	-0.08	1.24	0.05
GIA	-0.05	-0.12	-1.43	0.11
AIA	-0.07	-0.14	-1.52	0.12
MIA	0.02	0.05	0.52	0.06

Notes: β = Standardized beta (regression), all coefficients were standardized. **p < .01. Team cohesion: Individual attractions to the group-social (ATG-S), Individual attractions to the group-task (ATG-T), Group integration-social (GI-S), and Group integration-task (GI-T), Imagery use: Cognitive Specific (CS), Cognitive General (CG), Motivational Specific (MS), Motivational General- Arousal (MG-A), Motivational General- Mastery (MG-M), Imagery ability: Skill Imagery Ability (SKIA), Strategy Imagery Ability (STIA), Goal Imagery Ability (GIA), Affect Imagery Ability (AIA), and Mastery Imagery Ability (MIA).

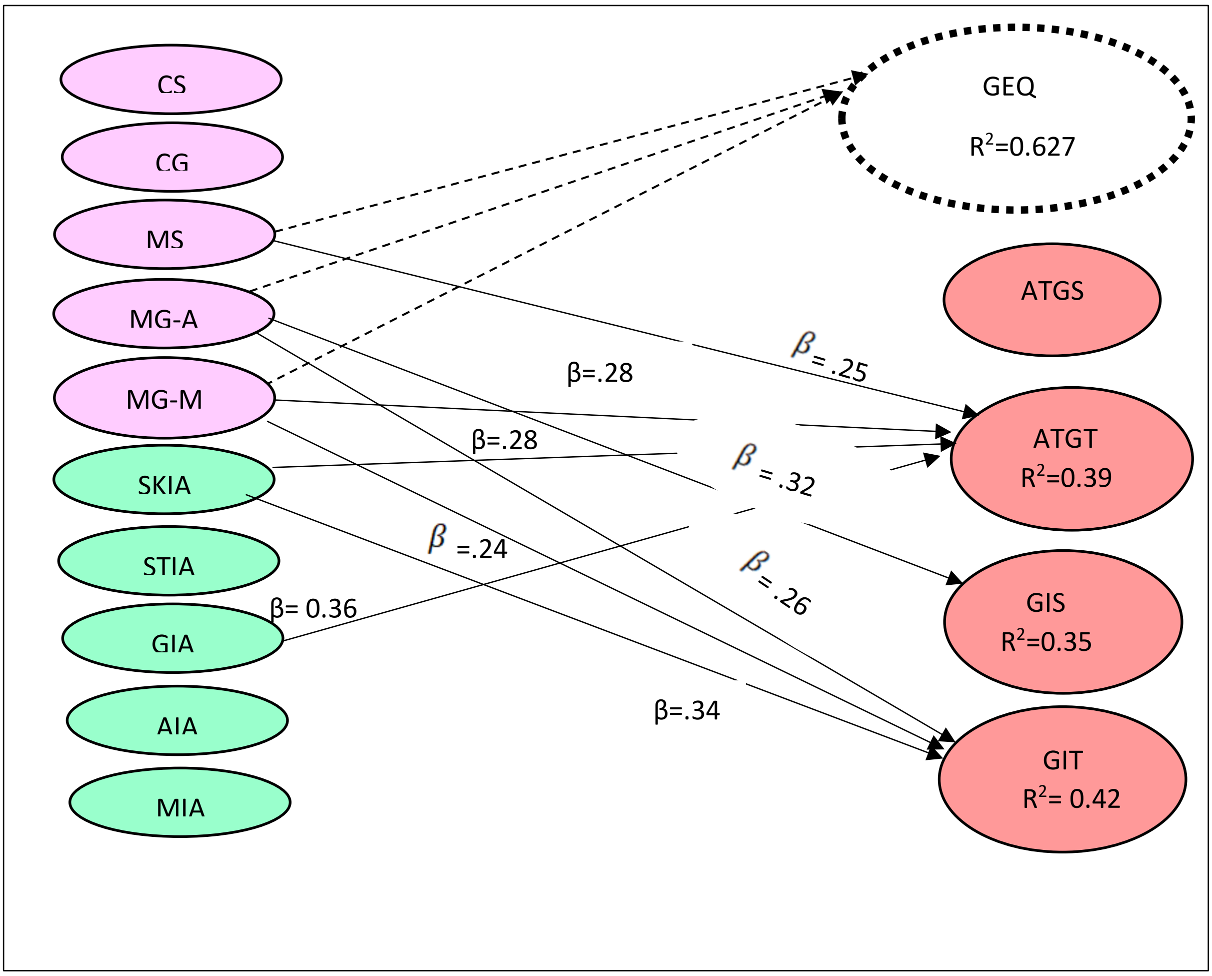

Figure 1 Regression model on imagery towards team cohesion

Discussion

The first objective was to examine the team cohesion among student athletes in sports. In this study, it was found that there is no significant difference in the team cohesion dimensions between male and female groups either in social cohesion or in task cohesion. This finding is coherent with Zakaria et al.'s (2012), of which similar results on team cohesion among the Malaysian National Service Training Programme participants were found, with male scoring insignificantly higher than the female participants. A study by Muthiane et al. (2015) also found that there is no significance difference in team cohesion between genders in the National Basketball Classic League in Kenya. However, this finding is incoherent with that of Eys et al. (2015) that shows gender differences in team cohesion in their basketball team players, where female players had a higher team cohesion compared to that of the male players.

The second research objective was to determine the gender differences in imagery use. The findings indicate that there is no significant difference between male and female groups in the imagery use subscales among MASUM student athletes. This finding is coherent with Peltomaki's (2014) and Gregg and Strachan's (2015) that show no gender differences in the use of imagery by youth soccer athletes. These results are also consistent with the findings of Campos (2014). However, the finding is incoherent with that of Rattanakoses et al. (2009), of which the male athletes obtained a significantly higher mean than female athletes in imagery use.

The third research objective was to investigate the gender differences in terms of imagery ability. The findings show that there is no significant difference between genders in the global imagery ability among the athletes. The finding of this study is coherent with those of previous studies by William et al. (2012) and Yu et al. (2015), which indicate that there is no significant difference in imagery ability between genders among team sport athletes and dancers. However, there is a significant difference in the ability in strategizing image (STIA; image to perform action), of which the males show a higher mean compared to the female athletes during sports competition. This finding is in accordance with the finding of previous study by Mendes et al. (2015), of which the study compared imagery ability between genders among 62 Portuguese basketball practitioners. The results indicate that males have a better imagery capacity in kinesthetic (image to perform a movement or action) compared to female basketball athletes.

The last research objective was to determine the contribution of imagery use and imagery ability to the prediction of team cohesion among MASUM student athletes. The subscales of MGM, MGA, MS, GIA, and SKIA imagery variables are significantly related to team cohesion. The ATGS cohesion dimension is the only dimension of team cohesion that does not have a relationship with any imagery skill. As hypothesised, MGM, MGA, and SKIA imagery have a strong relationship with GIT. This is due to the bonding that the athletes had prior to the competition that helped in maintaining themselves in the bonding with the team as a unit to satisfy the completion of the task (Cox, 2012). According to Hall et al. (1998), MGM is related to qualities, such as confidence, mental toughness, focus, effort, and being successful in difficult situations, which are the characteristics of players with a high team efficacy. Moreover, the MGA imagery function is a type of imagery, in which the athletes imagine their ability to control emotion. For instance, the athletes who used the relaxation technique during a beach volleyball tournament succeeded in winning the game (Cox, 2012). The skill imagery ability (SKIA) is referred to as cognitive imagery where athletes are able to image the skills related to the sport (Williams & Cumming, 2014). It has been suggested that the images of the team being mentally tough, confident, focused, successful, and in control of their emotion are able to generate skills that could increase the athletes' perception with the team as a whole in the desire to win. For instance, one of the item from the GIT subscales, which is "our team is united in trying to reach its goals for performance", while another item from MG-M for SIQTS, "I image the team giving 100 %", and item from SKIA, "Improving a particular skill to win", are all positive desired imageries. These findings are coherent with Curtin et al.'s (2015), which found that MGM is a good predictor for GIT and ATGT as theme effort that have been discovered in the study. Therefore, from this study MGM, MGA, and SKIA imagery are strong predictors of the GIT team cohesion dimension.

The GIS team cohesion dimension was assumed to have a relationship with imagery because of the strong group integration is instilled within the team members (Curtin et al., 2015). In the current study, it was found that the team-level imagery of MGA is the only imagery function that is significantly related to the GIS team cohesion dimension. This result is incoherent with the results of a previous study by Curtin et al. (2015), of which GIS was found to be not significantly related to any imagery function. The GIS team cohesion dimension is referred to as a group integration attachment within the team as a whole in order to satisfy social needs (Cox, 2012). On the other hand, MGA is an imagery type that an individual should have in order to have the ability to control their emotional aspects (Cox, 2012). The relationship between these variables suggests that the images of the team in feeling excited, anxious, and passionate could increase individuals' perceptions towards their team attachment. For example, one of the items from the GIS subscales reads "Our team would like to spend time together in the off session", which corresponds well with the MGA items from the SIQTS, such as, "When I image the team performing, I feel the team getting psyched up". The theme of feeling of belongingness can be seen in these examples. The finding in this study is supported by Adegbesan (2010) who discusses the importance of a similar evaluation of team players' in group belongingness to take place cognitively and affectively. The more an individual image themselves perform in a team, the more self-belonging that they have with one another in order to satisfy social needs. In this study, the team-level imagery of MGA emerges as the second strongest predictor in relation to the GIS team cohesion dimension.

The SKIA imagery ability subscale is the strongest unique contributor to the dimension of team cohesion (Peltomaki, 2014). This finding indicates that the more ease an athlete has on the image of the goal in relation to sport (e.g., "myself winning a medal), the more likely they will report for individual attraction to the team and team members to satisfy the need of task completion (e.g., "Members of our team would rather go out together than go out on their own"). This suggests that athletes who have less difficulty in getting attracted to the team or team members are more unlikely to have uneasiness of image when they compete, and hence win. This finding is congruent with Sewell, Watkins, and Griffin's (2013), which states that individuals with a low-team cohesion has a higher tendency to leave the group and not complete a certain task on his own.

Even though imagery use explains 63 % of the variables for team cohesion, a combination of imagery skills is deemed important to associate with ATGT team cohesion, which are MS, MGM, and SKIA. A motivational specific (MS) imagery function is referred to the type of imagery, by which athletes could imagine themselves in a specific setting that is highly motivating (Cox, 2012). This relationship between variables can be seen through "This team gives me enough opportunities to improve my personal performance", item for SIQTS, "I imagine others congratulating our team on a good performance", item from MGM team-level imagery, "I imagine the team appearing confident in front of our opponents", and item from SKIA, "Improving a particular skill". The essence of motivational can be seen in these items between independent variables of MS and MGM to ATGT, which is coherent with Curtin et al.'s (2015). Williams and Cumming (2015); Darwish & Abdeldayem (2019) also suggest that imaging skills and strategies might improve athletes' confidence (motivational imagery). Therefore, MS, MGM, and SKIA are good predictors for ATGT.

Conclusions

In conclusion, no significant gender differences were found, even though male athletes have higher means on image use, ability, and team cohesion. This means that males are more at ease in using the image strategy related to sports compared to female athletes. However, this finding cannot be generalized to a larger population. The current research provides the evidence that motivational (affect, mastery) and cognition of imagery (skills and strategy) are positively correlated with team cohesion in task and social for group team cohesion dimension, but not in individual attraction to the group-social team cohesion dimension. Even though this study has identified imagery use and imagery ability as predictors for team cohesion among MASUM student athletes, however, the main and better predictor for team cohesion is imagery use, especially MS, MGA, and the MGM subscales. It is found that athletes with frequent use of team imagery functions and whom are at ease in using image related to sports are more likely to express self-belonging to a group and team members, compared to a low-level of team cohesion team. Hence, imagery use is suggested in team sport to promote team cohesiveness. In short, it was assumed that team-level imagery of mastery specific (MS), motivational group-mastery (MGM), and skill imagery ability (SKIA) are strong predictors of the attraction to group-task (ATGT), having the predictors explaining collectively at 39 % of team cohesion through ATGT. Moreover, a motivational group arousal (MGA) is considered as the positive predictor for group integration-social (GIS) explaining 35 % of team cohesion. Lastly, MGA, MGM, and SKIA were found as the best predictors to team cohesion through the group integration-task (GIT) dimension with the independent variables explaining collectively at 42 %. For all of the lost training time caused by the COVID-19 crisis, by committing to a consistent sport imagery program will result in a quantum leap in team sport performance. A combination of serious mental imagery program with an intensive physical conditioning regimen and quality sport training will prepare an athlete mentally and physically and make them more motivated, confident, intense, and focused. The athlete would be able to say, "I'm as prepared as I can be to perform my best and achieve my goals."

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