



Group cohesion in exercise classes: An examination of gender and type of exercise class differences

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Abstract

Group cohesion has been attributed to the higher levels of attendance and performance and lower levels of drop-outs in exercise classes. Cohesion can be affected by different type of exercise classes and gender. Therefore, the main purpose of the study was to compare the group cohesion levels of martial arts participants (aikido, taekwondo, karate, and kendo) with aerobic-like participants (aerobics, aero-steps, phys-gym, and high-low aerobics). This causal comparative study also aimed at examining gender differences in group cohesion in exercise classes. There were 140 participants ($M_{age}=28.1$ $SD= 8.01$ and female= 138 male= 2) in aerobic-like classes and 137 participants ($M_{age}= 22.2$ $SD= 3.8$ and female= 48 male= 89) in martial arts classes. Results revealed no gender differences between the groups on the perceptions of cohesion. On the other hand, except for individual attractions to the group-task dimension, participants of martial art classes had higher levels of group cohesion than the participants of aerobic-like classes. Consequently, it was concluded that different types of exercise classes may have different levels of cohesion and those differences were discussed within the context of exercise classes.

Keywords: Group cohesion; martial arts classes; aerobic-like classes

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Introduction

It is a well-known fact that physical activity has some physical health benefits such as controlling body-weight, building lean muscle tissue, reducing body-fat and developing muscular strength (Akande, Vanwyk & Osagie, 2000; Penedo & Dahn, 2005; Warburton, Nicol & Bredin, 2006). Besides physical health benefits, exercise has also some psychological benefits such as decreasing depression, tension, anxiety, increasing self-esteem, and cognitive functioning (Blumenthal, Williams, Needels & Wallace, 1982; Hughes, 1984; Hassmen, Koivula & Uutela, 2000; Dimeo, Bauer, Varahram, Proest & Halter, 2001; Salmon, 2001).

Despite the well established fact that exercise is beneficial, local studies conducted in many countries, in recent years, have shown that the rate of obesity and overweight have increased dramatically especially in adolescents. For example, Turkish Diabetes and Obesity Foundation reported that the rate of obesity and overweight in adolescents increased from 30% to 70% from 2002 to 2006 (Turkish Diabetes and Obesity Foundation, 2006). Similarly, in U.S. about 14% of young people report no recent physical activity whereas inactivity is more common among female adults (14%) than the males (7%). In addition, participation in all types of physical activity reduces strikingly as age or grade in school raises (U.S. Department of Health and Human Service, 2004). This situation is not so different for the university students. A cross-sectional study with 19,298 university students from 23 countries showed that the prevalence of inactivity in leisure time was found to be on average 23% (North-Western Europe and the United States), 30% (Central and Eastern Europe), 39% (Mediterranean), 42% (Pacific Asian), and 44% (developing countries). Knowledge about physical activity and health was disappointing; with only 40–60% being aware that physical activity can prevent from many diseases. Authors concluded that physical activity is below recommended levels in a substantial proportion of students (Haase, Steptoe, Sallis & Wardle, 2004). In general, university students tend to be in the 18-25 age range, a period during which critical health behaviours emerge (Williams, Holmbeck & Greenley, 2002). It is during these years that students make the important developmental transition from late adolescence to early adulthood; therefore, encouraging them to participate the physical activity classes and decreasing the drop-out rates from those classes can definitely affect their life-long habit and health.

These alarming statistics highlight the importance of exercise. Although individuals know the benefits of regular physical activity, adherence rates are problematic. In literature, it was reported that the drop-out rate of exercise programs is approximately 50% or higher (Gale, Eckhoff, Mogel & Rodnick, 1984; Robison & Rogers, 1994; Annesi & Unruh, 2004).

Group cohesion is one of the factors that affect the participants' attendance in the exercise classes or physical activity and sports (Carron & Spink, 1993; Spink & Carron, 1994; Annesi, 1999; Estabrooks & Carron, 1999; Spink, Wilson, & Odnokon, 2010). In the past several years, many studies have highlighted the relationship between cohesion and adherence in a variety of exercise groups. In summarizing these findings, individuals in exercise classes who feel more cohesive are likely to participate in more classes (Spink & Carron, 1992; Blanchard, Poon, Rodgers & Pinel, 2000), are more likely to arrive on time (Spink & Carron, 1992), are less likely to drop out (Spink & Carron, 1994), are more resistant to disruptions in the group (Brawley, Carron, & Widmeyer, 1988), are more likely to experience positive affect related to exercise, and have stronger useful beliefs related to exercise (Courneya, 1995). Besides, perception of cohesion positively affects adherence but it also affects satisfaction, attitude, and perceptions of resistance to disruptive events (Spink & Carron, 1992, 1994; Carron, Hausenblas & Mark, 1996; Loughead, Colman & Carron, 2001). There is considerable evidence to support the consequence that adherence is better sustained if the activity is carried out in the company of others. Furthermore, the previous studies confirmed that attendance to the exercise classes is greater when the task and social cohesion among individual exercisers are stronger (Spink & Carron, 1992; Spink & Carron, 1994; Carron, Widmeyer & Brawley, 1998).

There are many factors that affect the formation of group cohesion in exercise or physical activity classes. The group members' gender can be thought as a factor that may influence group cohesion. When it is considered about the definite level of group cohesion in female and male teams, they generally do not differ on the degree to which they are cohesive (Carron, Colman, Wheeler & Stevens, 2002). Moreover, similarity in the gender of group members is occasionally considered to be related with cohesiveness (Carron & Hausenblas, 1998; Lee & Farh, 2004). Studies related with gender diversity and cohesion in work groups and exercise classes revealed contradictory results. For example, Jackson et al., (1991); and Harrison, Price & Bell (1998) reported a negative relationship between group cohesion and gender diversity. That is, as member diversity in gender increased, group task cohesion

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decreased. Moreover, Shapcott, Carron, Burke, Bradshaw & Estabrooks, (2006) pointed out that gender diversity is negatively related group integration-task which is a subscale of group cohesion. On the other hand, no relationship was reported by Smith et al., (1994); Rogelberg & Rumery, (1996); Webber & Donahue, (2001). Beside gender, the type of task plays an important role in the tendency for a group to stick together and remain united in pursuit of its instrumental objectives and/or for the satisfaction of member affective needs (Carron, et al., 1998). For example, the level of cohesiveness in interactive sport teams is significantly more than that of the co-active sport teams (Widmeyer et al., 1985). Many studies have reported an association between cohesion and performance success in sports (Carron & Chelladurai, 1981; Carron, Bray & Eys, 2002; Carron, et al., 2002; Heuze, Raimbault & Fontayne, 2006). Similarly, high group cohesion has also been reported as the indicator of higher levels of attendance and performance and lower levels of drop-outs in different exercise classes like aerobics, dancing, walking groups, fitness etc. (Spink & Carron, 1992; Spink & Carron, 1994; Courneya, 1995; Blanchard, et al., 2000).

Recently, martial arts have become a popular physical activity in most countries (Columbus & Rice, 1998). Individuals have been participating in the martial arts particularly for recreational and health purposes (Weiser & Kutz, 1995; Lantz, 2002; McNamara, 2007). The martial arts have been developed originally in the ancient times in order to find more effective combat methods to defeat enemies and have been mainly studied by the soldiers. With the development of more lethal military arts, such as guns and bombs, the martial arts decreased in popularity as a combat art and evolved into a set of activities and methods for personal self-defence and self-development (Weiser & Kutz, 1995; Lewis, 1996; Payne, 1997; Friman, 1998;). However, the modern world views martial arts differently; individuals typically practice martial arts for some reasons, personal enjoyment and perceiving it as an excellent form of exercise that can contribute to a healthful lifestyle (Lantz, 2002; Complete Martial Arts, 2009). Besides, the main ideas of many martial arts instructors have been upon training the whole individual, so that they are mentally, physically, and spiritually prepared to meet the challenges of everyday life (Musashi & Wilson, 2002; Tsunetomo & Wilson, 2002). Since martial arts exercises, which have no competitive purposes, help individuals to grow both physically and mentally, it can be argued that the group cohesion levels of those exercise groups are supposed to be high. However, almost no study has been conducted to support this argument scientifically.

As discussed above, many studies have been conducted to investigate cohesion level among the exercise classes and the main focus was frequently on aerobic-like classes (ALC). On the other hand, there is no study indicating whether the level of group cohesion differs among different exercise classes. Therefore, one of the aims of the present study was to examine group cohesion level of martial art participants (MAP) and compare their group cohesion level with group cohesion levels in aerobic-like participants (ALP) such as aerobics, aero-steps, phys-gym, and high-low aerobics. This study also aimed at examining gender differences in group cohesion in exercise classes since researches related with gender differences in cohesiveness among the different sports teams revealed contradictory results. For example, Eys & Carron (2001) reported higher perception of task cohesion for female athletes than male athletes. On the other hand, Fenton, Horn & Pappas (2008) indicated the opposite finding at the beginning of the competition season. Besides, Widmeyer & Martens (1978); Widmeyer, Brawley & Carron (1985) revealed same level of cohesiveness for female and male.

Methods

Participants

The sample of this study constituted volunteer university students and university staff from two main exercise classes. The first exercise group included 140 participants ($M_{age}=23.1$ $SD=8.01$ and female= 138 male= 2) from ALC such as aerobics (3 groups, n=42), aero-steps (2 groups, n=33), phys-gym (2 groups, n=37), and high-low aerobics (2 groups, n=28) classes. Second exercise group consisted of 137 participants ($M_{age}=22.2$ $SD=3.8$ and female= 48 male= 89) from martial arts classes (MAC) such as aikido (3 groups, n=41), taekwondo (2 groups, n=38), karate (2 groups, n=37), and kendo classes (2 group, n=21). There were 9 ALC and 9 MAC. All activity classes were offered through a university program. MAC had no competitive purpose. All exercise participants met with their respective classes at least twice a week for an hour session. It was earlier stated that one month or at least 3 weeks time period is required to allow cohesion-a group property-sufficient time to develop (Spink & Carron, 1993). For this reason, each of the participants in this study had been involved with his or her exercise class for a minimum of 2 months. Participants in the ALC have been approximately together 3 months while participants in the MAC had been approximately together 7 months.

Instrument

Cohesion was assessed using the Estabrooks & Carron (2000) Physical Activity Group Environment Questionnaire (PAGEQ). PAGEQ is a 21-item inventory that assesses four manifestations of cohesion: individual attractions to the group-task (ATG-T, 6 items), individual attractions to the group-social (ATG-S, 6 items), group integration-task (GI-T, 5 items), and group integration-social (GI-S, 4 items). The ATG-T scale assesses the attractiveness of the group's task, productivity, and goals for the individual personally. The ATG-S scale, on the other hand, assesses the attractiveness of the group as a social unit and the social interaction and friendship opportunities available for the individual personally. The GI-T scale is a measure of the individual's perceptions of task unity within the group as a whole. Finally, the GI-S scale assesses the individual's perceptions of the social unity within the group as a whole. With the PAGEQ, exercise participants were required to respond to the 21 statements about their group on a 9-point Likert-type scale ranging from 1 (*very strongly disagree*) to 9 (*very strongly agree*). Average scale scores were used for the statistical analysis with higher scores representing stronger perceptions of class cohesiveness. The back translation procedure as suggested by Brislin (1986) was carried out to translate the instrument to Turkish language. For the reliability and validity of Turkish version of the PAGEQ showed similar factor loadings as in the original study (Akpınar & Aşçı, 2006). Moreover, the internal consistency (Cronbach alpha) of Turkish version was .78 for ATG-S subscale, .83 for (ATG-T), .70 for (GI-S), .79 (GI-T). Even though internal consistency for the GI-S is relatively smaller than the other manifestations of cohesion and under the recommended value, that value is high enough for the inclusion according to Pallant (2001). Thus, it was concluded that the Turkish version of the PAGEQ is a reliable and valid instrument to assess individual member's perceptions of cohesion in relation to an exercise class.

Procedure

To administer the questionnaires, permission was obtained from the university sports administration and the class leaders helped in the administration process of the questionnaires. A complete description of the study was provided to the participants and all participants signed an informed consent form to participate in the study. All participants completed the PAGEQ after the exercise class sessions. The timing for questionnaire administration was based on cohesion being a group property that requires time to develop

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(Loughead, et al., 2001). Furthermore, participants who were together less than 2 months with their groups were excluded from the study since the questionnaire was administered after at least 8 weeks of exercise class involvement.

The question “how long have you been with this exercise class?” was asked to the participants in order to learn the length of participation.

Statistical Analysis

This was a causal comparative study and in order to examine for gender and type of exercise class differences in the level of cohesion. Gender and type of exercise class differences were statistically analyzed separately because of the unbalanced gender distribution on ALC. Gender differences was examined only in MAC as the distribution for gender was sufficient to ensure adequate power for the analysis. Moreover, the histograms for each dependent variable were checked to make sure about the normal distribution. Therefore, two separate Multivariate Analyses of Variance (MANOVAs) were performed with having 4 subscales as dependent variables (DVs). Univariate analysis of variances (ANOVA) was conducted as follow-up tests. The alpha level was determined as $p < .05$ for the MANOVAs. In order not to commit type 1 error, Bonferroni method (Tabachnick & Fidel, 2001) was used and each ANOVA was tested at the .01 level (.05 divided by the number of DVs).

Results

Means and standard errors of the group cohesion in physical activity classes (ALC vs. MAC) were shown in Figure 1 A-D. As it can be seen in this figure, the level of group cohesion among all subscales (except ITG-T) appears higher in MAC. In Figure 2 A-D, means and standard errors of the four dimensions of group cohesion in MAC were given. According to this figure, the perception of cohesion in all subscales between female and male appears very similar.

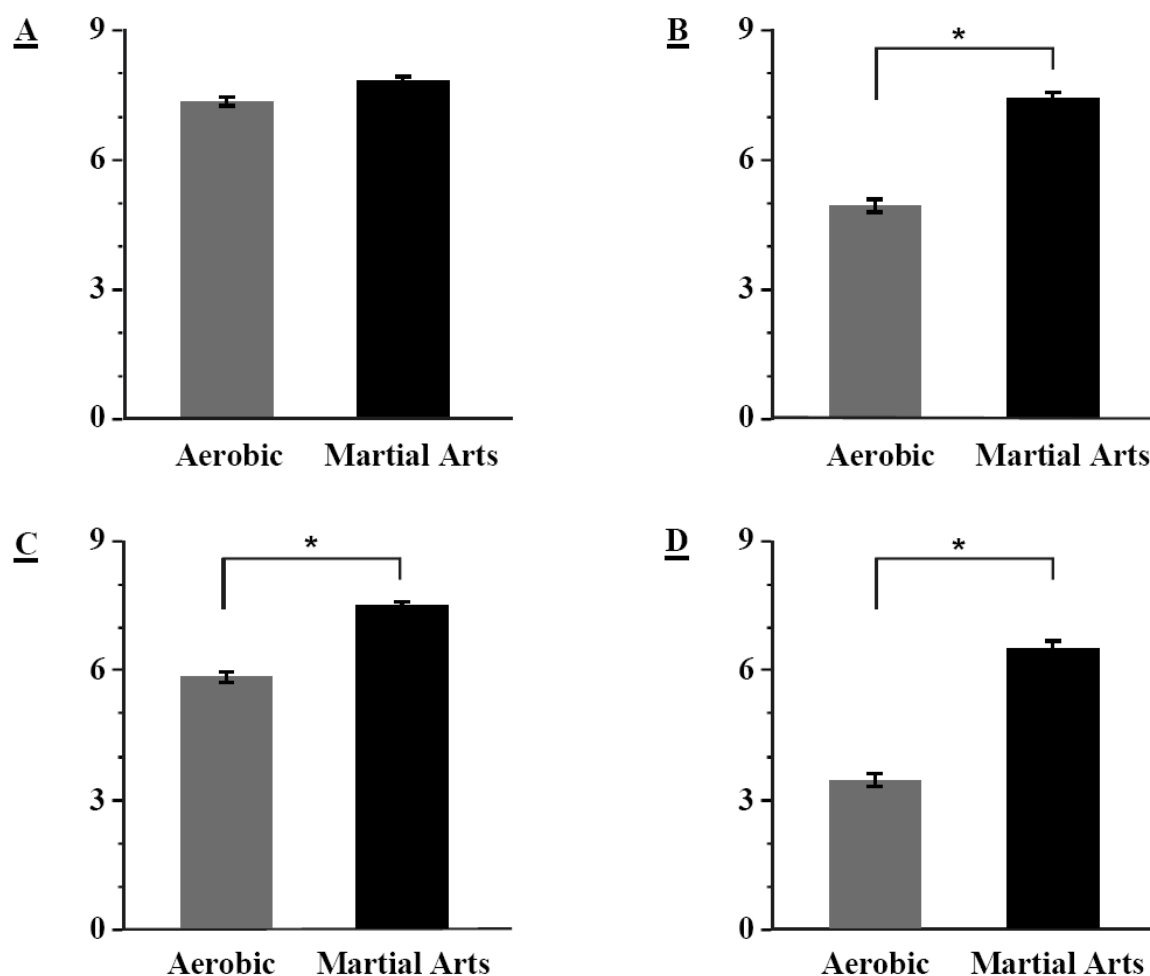


Figure 1. Subscales of the Physical Activity Group Environment Questionnaire (PAGEQ) on a 9-point Likert-type scale ranging from 1 (very strongly disagree) to 9 (very strongly agree) between aerobic-like exercise and martial arts exercise classes (A) individual attractions to the group-task, (B) individual attractions to the group-social, (C) group integration-task, (D) group integration-social.

A one-way MANOVA was conducted to analyse the differences in cohesion (ATG-T, ATG-S, GI-T, and GI-S) between ALC and MAC. Result of MANOVA (Table 1) with the use of Wilks' criterion revealed that the combined DVs were significantly affected by types of exercise class, Wilks' Lambda= .53, $F_{(4, 272)}= 61.5$, $p<.05$, $\eta = .48$. Follow up univariate analysis of variances (ANOVA) on each dependent variable (ATG-T, ATG-S, GI-T, and GI-S) with Bonferroni method indicated significant differences in the ATG-S subscale $F_{(1, 275)}= 174.05$, $p<.01$, and $\eta = .39$, in the GI-T subscale $F_{(1, 275)}= 122.36$, $p<.01$, and $\eta = .31$, and in the GI-S subscale $F_{(1, 275)}= 165.46$, $p<.01$, and $\eta = .37$. However, no significant difference was found in the ATG-T (M=7.32, SE=.09 for ALC and M=7.80,

SE=.09 for MAC) subscale $F_{(1, 275)} = 1.35, p > .01$, and $\eta = .02$. Although small effect size was observed for the ATG-T, large effect sizes were observed for the other dimensions. For the ATG-S (M=4.89, SE=.13 for ALC and M=7.40, SE=.14 for MAC), GI-T (M=5.82, SE=.10 for ALC and M=7.48, SE=.10 for MAC), and GI-S (M=3.42, SE=.16 for ALC and M=6.47, SE=.16 for MAC) subscales, MAP had higher cohesion values than ALP.

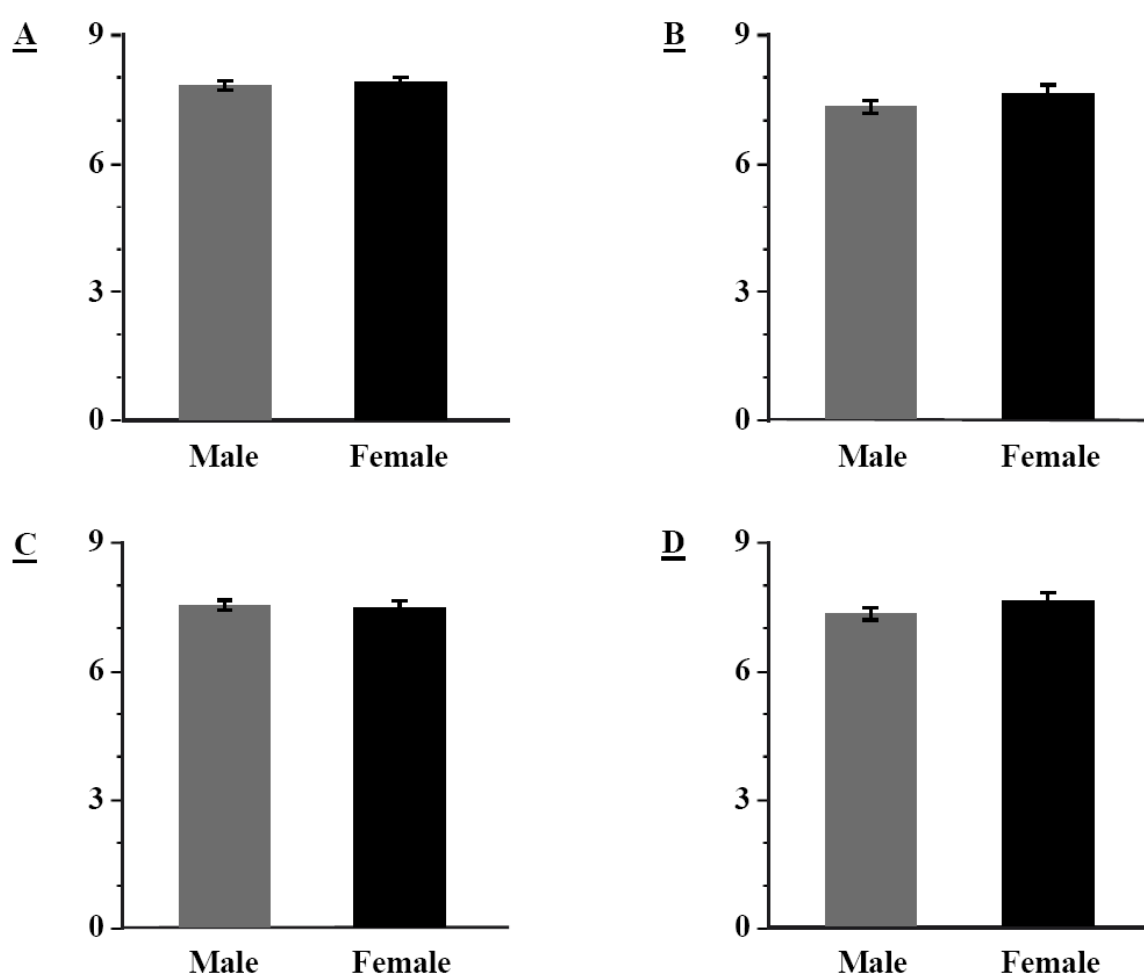


Figure 2. Subscales of the Physical Activity Group Environment Questionnaire (PAGEQ) on a 9-point Likert-type scale ranging from 1 (very strongly disagree) to 9 (very strongly agree) between male and female participants in martial arts exercise classes (A) individual attractions to the group-task, (B) individual attractions to the group-social, (C) group integration-task, (D) group integration-social.

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Table 1. MANOVA result of type of exercise class on the dimensions of group cohesion

Effect	Wilks' Lambda	F	df ₁	df ₂	Partial η^2
Type of Exercise Class	.53	61.5	4	272	.48

$p < .05$

Table 2. The result of ANOVA on each dimension of group cohesion

Source	Dependent Variables	F	df ₁	df ₂	Partial η^2
Types of Exercise Class	IAG_T	1.35	1	275	.02
	IAG_S	174.05*	1	275	.39
	GI_T	122.36*	1	275	.31
	GI_S	165.46*	1	275	.37

* $p < .01$

The result for the gender difference revealed a non-significant effect on the level of cohesion in MAC (Table 3), Wilks' Lambda = .96, $F_{(4, 132)} = 1.34$, $p > .05$, and $\eta = .04$ which is a small effect according to Cohen (1988). In the light of this result, it can be said that both female and male participants have similar perceptions of group cohesion. However, in all dimensions of group cohesion except for ATG-T dimension, perception of cohesion is higher in MAC than in ALC.

Table 3. MANOVA result of gender on the dimensions of group cohesion

Effect	Wilks' Lambda	F	df ₁	df ₂	Partial η^2
Gender	.96	1.34	4	132	.04

$p > .05$

Discussion and Conclusion

The main purpose of this study was to compare levels of group cohesion between ALC and MAC. For this purpose, it was not only made a comparison between two different exercise classes, but also tried to give some suggestions to the exercise leaders about how they can improve the level of cohesion in their exercise groups. Level of cohesion can change among the different types of sports. This evidence is a basis to predict that level of

group cohesion would be different between two types of exercise classes. As the individuals attending to MAC have respect to the exercise leader and exercise type itself, it would be expected higher cohesion level in favor of those exercise classes. Analysis indicated that there were significant group cohesion level differences between the groups in all dimensions of group cohesion except for ATG-T dimension. No significant difference in ATG-T dimension indicated that all participants personally have similar perception of task cohesion with their groups. In the present study, ATG-T dimension which reflects the individual member's perceptions of his or her personal involvement with the group task was found as the most noticeable dimension of the group cohesion for both ALC and MAC. Similar findings have also been reported by several exercise classes such as aerobic fitness, fitness, and strength training for flexibility (Spink & Carron, 1993; Estabrooks & Carron, 1999). On the other hand, the mean difference between the groups for the ATG-S dimension was fairly high when compared to ATG-T dimension, indicating that social interaction perception of the MAP are clearly higher than the ALP. Similarly, Lantz (2002) stated that martial arts offered many opportunities for friendship, socialization and community development for the participants. In martial arts exercises, almost all movements are performed with a pair; thus, participants have to trust and rely on to their pair when performing a movement together. Performing the movements together lead participants to work and interact with the other participants during the exercise. In this way, it can be said that stronger individual friendship and socialization could be the consequence of this exercise class. On the other hand, participants almost have no interaction while performing the movements during the exercise in the ALC. This might be the possible reason for lower cohesion level in the ATG-S dimension for ALC when compared to MAC.

MAP also significantly had higher scores on GI-T and GI-S dimensions than ALP. Especially in GI-S dimension, participants' perceptions of the social unity within the group as a whole were low ($M= 3.32$ $SD= 1.66$) in ALC. Spink & Carron (1993) stated that T-shirt or wearing same exercise clothes can increase group identity, unity, and cohesion. ALP generally wore different exercise clothes. However, in MAC, participants wore same exercise clothes as these exercises require wearing special clothes. Therefore, MAP may develop a perception of social unity. Furthermore, higher scores in GI-T dimension for MAC may stem from participants' similar philosophical and spiritual purposes. Individuals who participate to MAC may have similar perception of task unity in the exercise classes since

they know what types of exercises will be performed in class and accept these exercises in advance. In ALC, participants may perceive the tasks being performed in the classes individually, not as a group. In fact, cohesion is said to be a multidimensional construct and not all factors equally important in all situations (Carron, et al., 1998; Carron & Brawley, 2000). It can be concluded from these results that for ALC, task cohesion is important; however, both task and social cohesion are important for MAC.

There are many factors affecting the group cohesion in an exercise class. One of those factors is the leadership style of the exercise leader. Leadership factors include the leadership style and behaviours that professional's exhibit and the relationships they establish with their groups. Many studies showed that leaders can increase the cohesion of the class, and improve the attendance rate (Loughead, et al., 2001; Rozell & Gundersen, 2003; Loughead & Carron, 2004). Loughead, Patterson & Carron (2008) have found the positive effect of fitness leader on the improvement of level of group cohesion. They emphasized the importance of fitness leaders on the development of more cohesive classes with implementing more team-building activities. In this study, the reason of the higher cohesion in MAC may also be related with the leadership. In MAC, the interaction between the leader and the participants can be different from the other exercise classes as the nature of the martial arts includes higher respect for the group leader (Koçak, Sözeri, Akpınar & Karlı, 2006). Therefore, it can be considered that high respect for the leader and the other participants may also lead this higher cohesion within the group. Besides, the leader behaviours were found to be important to enhance the both task and social cohesion in exercise classes because they provide a sense of unity around the class' task and cause greater attendance (Loughead, et al., 2001). In this manner, this factor may also explain the higher cohesion in MAC as there are mutual trust and understanding between the leader and the MAP (Theeboom, De Knop & Wylleman, 2008).

In their study, Carron, Brawley and Widmeyer (1998) stated that social relationships may develop and evolve over time. However, one month or at least 3 weeks time period was thought to be enough to develop cohesion (Spink & Carron, 1993). Moreover, Chang & Bordia (2001) in their study examined the temporal development of group cohesion over time among university students taking psychology course. As part of the course requirement, students formed into groups of 3 or 4 to work on a job-analysis assignment. The group project lasted for 5 weeks. Time 1 measure was taken in the 2nd

week of the project, and Time 2 measure was taken in the 5th week of the project. The authors looked at the level of group cohesion over time. The result showed no significant difference on the level of cohesion between two time periods. Furthermore, Meeuwsen and Pederson (2006) also investigated group cohesion within permanent student teams over time. Group Environment Questionnaire was administered after the first 4 weeks of the semester and during the last day of classes. Average scores for group cohesion did not change significantly over time. These results suggest that whereas there should be some period of time in order to develop cohesion among groups, this developed cohesion does not change much over the time. In this study, the duration of the participation of MAP is longer than ALP (7 months to 3 months respectively). As the studies showed no significant change on cohesion over time (after it is developed), it was assumed that the level of cohesion would be the same for ALP at the participation of the 7th month. However, there might be still a possibility to think that one of the reasons for MAP's higher social cohesion level may be the length of time that they were participating in the activity together.

As a secondary purpose, the gender differences in group cohesion were examined. Considering the results of the studies in the literature, it was expected that there would be no gender effect on group cohesion between two groups as there are some inconsistent results in the literature for the gender differences and group cohesion. Analysis indicated that, the perception of cohesion between female and male participants were not different in MAC. Literature indicated some contradictory results about gender differences in cohesiveness among the different sports teams. Some studies reported that female athletes were found to have a higher perception of task cohesion than male athletes (such as Eys & Carron, 2001). The similar finding was also found in working teams (Sanchez & Yurrebaso, 2009). On the other hand, in some other studies male athletes were found to maintain a higher perception of task cohesion than female athletes at the beginning of the competitive season (such as Fenton, Horn & Pappas, 2008). Furthermore it is possible to find the studies that indicated same group cohesion scores between males and females (Widmeyer & Martens, 1978; Widmeyer, et al., 1985). Moreover, Carron & Hausenblas (1998), concluded that there are no systematic differences in cohesion related in the gender of the athletes which supported the obtained finding.

In conclusion, it can be said that different types of exercise classes may have different levels of cohesion. These differences may stem from the exercises being performed in the group

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(with or without pair), opportunities for friendship and socialization, wearing same clothes during the exercise time, leadership styles, and the duration of the participation. As one of the important issues in recent years is to convince people to keep continuing to exercise classes, understanding these differences and trying to develop group cohesion in exercise classes should be the main task of the exercise leaders. By this way, the rate of attendance among the participants would definitely improve. The data also indicates that future research needs to be done in order to examine exercise adherence, leadership, and group cohesion among different exercise classes. Moreover, the effect of gender differences on group cohesion should be investigated in detail in future studies.

The findings of this study suggest some implications for the exercise leaders, indicating that fostering social bonds, making the movements more attractive during the exercise class, motivating the participants to keep them continuing to the exercise, making participants have some interactions while performing the movements during the exercise and enhancing the perception of class unity by setting common objectives are promising components for interventions designed to increase group cohesion in exercise classes.

References

- Akande, A., Vanwyk, C. D. & Osagie, J. E. (2000). Importance of exercise and nutrition in the prevention of illness and the enhancement of health. *Education*, 120, 758-773.
- Akpınar, S. & Aşçı, F.H. (2006). The reliability and validity study of Turkish version of the physical activity group environment questionnaire. *The 9. International Sports Sciences Congress*, Muğla, Turkey.
- Annesi, J.J. (1999). Effects of minimal group promotion on cohesion and exercise adherence. *Small Group Research*, 30, 542-557.
- Annesi, J. J. & Unruh, J. L. (2004). Effects of a cognitive behavioural treatment protocol on the drop-out rates of exercise participants in 17 YMCA facilities of six cities. *Psychological Reports*, 95, 250-256.
- Blanchard, C., Poon, P., Rodgers, W. & Pinel, B. (2000). Group environment questionnaire and its applicability in an exercise setting. *Small Group Research*, 31, 210-224.
- Blumenthal, J.A., Williams, R.S., Needels, T.L. & Wallace, A.G. (1982). Psychological changes accompany aerobic exercise in healthy middle-aged adults. *Psychosomatic Medicine*, 44(6), 529-536.

Akpınar S., Kirazcı S., Aşçı F.H. (2011). Group cohesion in exercise classes: An examination of gender and type of exercise class differences. *International Journal of Human Sciences* [Online]. 8:2. Available: <http://www.insanbilimleri.com/en>

- Brawley, L. R., Carron, A. V. & Widmeyer, W. N. (1988). Exploring the relationship between cohesion and group resistance to disruption. *Journal of Sport & Exercise Psychology*, 10, 199-213.
- Brislin, R. W. (1986). *The wording and translation of research instruments*. In W. J. Lonner & J. W. Berry (Eds.), *Field methods in educational research*, (pp. 137-164). Newbury Park, CA: Sage.
- Carron, A. V., Bray, S. R. & Eys, M. A. (2002). Team cohesion and team success in sport. *Journal of Sports Sciences*, 20:2, 119 - 126
- Carron, A. V., & Brawley, L. R. (2000). Cohesion: Conceptual and measurement issues. *Small Group Research*, 31, 89-106.
- Carron, A.V., Brawley, L. R. & Widmeyer, W. N. (1998). *The measurement of cohesiveness in sport groups*. In J. L. Duda (Ed.), *Advances in sport and exercise psychology measurement*, (pp. 213-226). Morgantown, WV: Fitness Information Technology.
- Carron, A.V. & Chelladurai, P. (1981). Cohesion as a factor in sport performance. *International Review of Sport Sociology*, 16, 2-41.
- Carron, A.V., Colman, M.M., Wheeler, J. & Stevens, D. (2002). Cohesion and performance in sport: A meta analysis. *Journal of Sport and Exercise Psychology*, 24, 168-188.
- Carron, A. V., Hausenblas, H. A. & Mack, D. (1996). Social influence and exercise: A meta-analysis. *Journal of Sport & Exercise Psychology*, 18, 1-16.
- Carron, A.V. & Hausenblas, H. A. (1998). *Group dynamics in sport* (2nd ed.), Morgantown, WV: Fitness Information Technology.
- Carron, A.V. & Spink, K.S. (1999). Team building in an exercise setting. *Sport Psychology*, 37, 8-18.
- Carron, A.V., Widmeyer, W.N. & Brawley, L.R. (1988). Group cohesion and individual adherence to physical activity. *Journal of Sport & Exercise Psychology*, 10(2), 127-138.
- Chang, A. & Bordia, P. (2001). A multidimensional approach to the group cohesion–group performance relationship. *Small Group Research*, 32, 379–405.
- Cohen, J. (1988). *Statistical Power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Columbus, P. J., & Rice, D. (1998). Phenomenological meaning of martial arts participation. *Journal of Sport Behavior*, 21(1), 16-30.
- Complete Martial Arts. (2006). Retrieved August 14, 2009 from:
- <http://www.completemartialarts.com/information/styles/americanhistory.htm>
- Courneya, K.S. (1995). Cohesion correlates with affect in structured exercise classes. *Perceptual and Motor Skills*, 81, 1021-1022.
- Dimeo, F., Bauer, M., Varahram, I., Proest, G. & Halter, U. (2001). Benefits from aerobic exercise in patients with major depression: A pilot study. *Br J Sports Med*, 35(2):114-7.

Akpınar S., Kirazcı S., Aşçı F.H. (2011). Group cohesion in exercise classes: An examination of gender and type of exercise class differences. *International Journal of Human Sciences* [Online]. 8:2. Available: <http://www.insanbilimleri.com/en>

-
- Estabrooks, P.A. & Carron, A.V. (1999). Group cohesion in older adult exercisers: prediction and intervention effects. *Journal of Behavioral Medicine*, 22, 6, 575-588.
 - Estabrooks, P.A. & Carron, A.V. (2000). The physical activity group environment questionnaire: an instrument for the assessment of cohesion in exercise classes. *Group Dynamics*, 4, 230-243.
 - Eys, M. A. & Carron, A. V. (2001). Role ambiguity, task cohesion, and task self-efficacy. *Small Group Research*, 32(3), 356-373.
 - Fenton, L. R., Horn, T. S. & Pappas, G. (2008). Examining the relationship between perceived coaching behaviors and changes across a competitive season in collegiate athletes' evaluation of their teams dynamics. *Journal of Sport & Exercise Psychology*, 30, S165-S166.
 - Friman, H.R. (1998). The art of regulation: Martial arts as threats to social order. *Journal of Asian Martial Arts*, 7(3) 11-23.
 - Gale, J. B., Eckhoff, W. T., Mogel, S. F. & Rodnick, J. E. (1984). Factors related to adherence to an exercise program for healthy adults. *Medicine and Science in Sports and Exercise*, 16, 544-549.
 - Haase, A., Steptoe, A., Sallis, J.F. & Wardle, J. (2004). Leisure-time physical activity in university students from 23 countries: associations with health beliefs, risk awareness, and national economic development. *Preventive Medicine*, 39, 182-190.
 - Harrison, D. A., Price, K. H. & Bell, M. P. (1998). Beyond relational demography: Time and effects of surface- and deep-level diversity on work group cohesion. *Academy of Management Journal*, 41, 96-107.
 - Hassmen, P., Koivula, N. & Uutela, A. (2000). Physical Exercise and Psychological Well-Being: A Population Study in Finland. *Preventive Medicine*, 30(1):17-25.
 - Heuze', J.P., Raimbault, N. & Fontayne, P. (2006). Relationships between cohesion, collective efficacy and performance in professional basketball teams: An examination of mediating effects. *Journal of Sports Sciences*, 24(1): 59 – 68.
 - Hughes, J.R. (1984). Psychological effects of habitual aerobic exercise: A critical review. *Preventive Medicine*, 13(1), 66-78.
 - Jackson, S.E., Brett, J.F., Sessa, V.I., Cooper, D.M., Julin, J.A. & Peyronnin, K. (1991). Some differences make a difference: Individual dissimilarity and group heterogeneity as correlates of recruitment, promotions, and turnover. *Journal of Applied Psychology*, 76, 675-689.
 - Koçak, S., Sözeri, B., Akpınar, S. & Karlı, U. (2006). *Spor Kuralları*. Ankara, 2006; ODTÜ Bilim ve Toplum Kitapları Dizisi.
 - Lantz, J. (2002). Family development and the martial arts: A phenomenological study. *Contemporary Family Therapy*, 24, 4, 565-580.
 - Lee, C. & Farh, J.L. (2004). Joint Effects of Group Efficacy and Gender Diversity on Group Cohesion and Performance. *Applied Psychology: An International Review*, 53 (1), 136-154.
 - Lewis, P. (1996). *The martial arts*. London, Prion Books.

Akpınar S., Kirazcı S., Aşçı F.H. (2011). Group cohesion in exercise classes: An examination of gender and type of exercise class differences. *International Journal of Human Sciences* [Online]. 8:2. Available: <http://www.insanbilimleri.com/en>

-
- Loughhead, T. M. & Carron, A. V. (2004). The mediating role of cohesion in the leader behavior–satisfaction relationship. *Psychology of Sport and Exercise*, 5(3), 355-371.
 - Loughhead, T. M., Colman, M. M. & Carron, A. V. (2001). Investigating the mediational relationship of leadership, class cohesion, and adherence in an exercise setting. *Small Group Research*, 32(5), 558-575.
 - Loughhead, T. M., Patterson, M. M. & Carron, A. V. (2008). The impact of fitness leader behavior and cohesion on a exerciser's affective state. *Small Group Research*, 6(1), 53-68.
 - McNamara, J. D. (2007). The effect of modern marketing on martial arts and traditional martial arts culture. *The sport Journal*, 10, 1.
 - Meeuwsen, H. J. & Pederson, R. (2006). Group cohesion in team based learning. *MountainRise*, 3(1).
<http://www.wcu.edu/facctr/mountainrise/archive/vol3no1/html/meeuwsen.htm>
 - Musashi, M. & Wilson, W. (2002). *The Book of Five Rings*. Tokyo, Kondansha International.
 - Pallant, J. (2001). *SPSS: Survival Manual*. Open University Press, 2001; USA.
 - Payne, P. (1997). *Martial arts: The spiritual dimension*. London, Thames and Hudson.
 - Penedo, F.J. & Dahn, J. R. (2005). Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current Opinion in Psychiatry*, 18(2):189-193.
 - Robison, J. I. & Rogers, M. A. (1994). Adherence to exercise programs: Recommendations. *Sports Medicine*, 17, 39-52.
 - Rogelberg, S. G. & Rumery, S.M. (1996). Gender diversity, team decision quality, time on task, and interpersonal cohesion. *Small Group Research*, 27(1), 79-90.
 - Rozell, E. J. & Gundersen, D.E. (2003). The effects of leader impression management on group perceptions of cohesion, consensus, and communication. *Small Group Research*, 34(2), 197-222.
 - Salmon P. (2001). Effects of physical exercise on anxiety, depression, and sensitivity to stress - A unifying theory. *Clinical Psychology Review*, 21(1), 33-61.
 - Sanchez, J. C. & Yurrebaso, A. (2009). Group Cohesion: Relationships with work team culture. *Psicothema*, 21, 97-104.
 - Shapcott, K. M., Carron, A. V., Burke, S. M., Bradshaw, M. H. & Estabrooks, P. A. (2006). Member diversity and cohesion and performance in walking groups. *Small Group Research*, 37(6), 701-720.
 - Smith, K. G., Smith, K. A., Olian, J. D., Sims, H. P., O'Bannon, D. P. & Scully, J. A. (1994). Top management team demography and process: The role of social integration and communication. *Administrative Science Quarterly*, 39, 412-438.
 - Spink, K. S. & Carron, A. V. (1992). Group cohesion and adherence in exercise classes. *Journal of Sport & Exercise Psychology*, 14, 78-86.

Akpınar S., Kirazcı S., Aşçı F.H. (2011). Group cohesion in exercise classes: An examination of gender and type of exercise class differences. *International Journal of Human Sciences* [Online]. 8:2. Available: <http://www.insanbilimleri.com/en>

- Spink, K. S. & Carron, A. V. (1993). The effects of team building on the adherence patterns of female exercise participants. *Journal of Sport Exercise Psychology*, 15: 39, 49.
- Spink, K. S. & Carron, A. V. (1994). Group cohesion effects in exercise classes. *Small Group Research*, 25(1), 26-42.
- Spink, K. S., Wilson, K. S. & Odnokon, P. (2010). Examining the relationship between cohesion and return the team in elite athletes. *Psychology of Sport and Exercise*, 11(1): 6-11.
- Tabachnick, B. G. & Fidel, L. S. (2001). *Using multivariate statistics* (4th edition). London, Allyn and Bacon.
- Theeboom, M., De Knop, P. & Wylleman, P. (2008). Martial arts and socially vulnerable youth. An analysis of Flemish initiatives. *Sport, Education and Society*, 13: 3, 301-318.
- Tsunetomo, Y. & Wilson, S. (2002). *Hagakure: The Book of the Samurai*. Tokyo, Kondansha International Ltd.
- Turkish Diabetes and Obesity Foundation. (2006). Retrieved May 15, 2009 from: <http://www.turkdiab.org/sayfa.aspx?m=11>
- U.S. Department of Health and Human Services. Physical activity and health: A report of the surgeon general executive summary. Atlanta, 2004; PA: Author.
- Warburton, D.E.R., Nicol, C.W. & Bredin, S.D. (2006). Health benefits of physical activity: the evidence. *CMAJ*, 14, 174.
- Webber, S. S. & Donahue, L. M. (2001). Impact of highly and less-job-related diversity on work group cohesion and performance: A meta analysis. *Journal of Management*, 27, 141-162.
- Weiser, M. & Kutz, I. (1995). Psychotherapeutic aspects of the martial arts. *American Journal of Psychotherapy*, 49(1), 118-128.
- Widmeyer, W. N., Brawley, L. R. & Carron, A. V. (1985). *The measurement of cohesion in team sports: The Group Environment Questionnaire*. London, ON: Sports Dynamics.
- Widmeyer, W. N. & Martens, R. (1978). When cohesion predicts performance outcome in sports. *Research Quarterly*, 49, 327-330.
- Williams, P.G., Holmbeck, G.N. & Greenley, R.N. (2002). Adolescent health psychology, *Journal of Consulting and Clinical Psychology*, 70, 828–842.