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The Effect of Same and Opposite Gender Friendship on Regular Physical Activity and Cigarette Smoking Habits

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ABSTRACT This paper aims to investigate the effect of same (SGF) and opposite (OGF) gender friendship on regular physical activity (PA) and cigarette smoking (CS) habits of individuals living in the province of Adana. By using questionnaire, the data for regular PA level and CS was collected from the total 553 volunteers, including 237 females and 316 males, aged 20-40 years with their SGF and OGF. This study showed that the rate of physical activity for males and females were significantly higher than SGF and OGF. The physical activity level in males and females were highly correlated with the SGF than that of OGF. CS rates in male participants were significantly lower than their SGF and significantly higher OGF, while these rates for female participants were similar to their SGF's. In conclusion, CS habits and regular PA levels in both genders were more affected by their interactions with SGF than OGF.

INTRODUCTION

Physical activity (PA) is defined as muscular or physical work that leads to consumption of energy over the resting level, and many studies and clinical trials proved that PA has a positive impact on human health (WHO 2010; Gorobet 2015; Pescatello 2014; European Commission 2015). Despite the reduction of smoking in developed countries over the past 10 years, smoking addiction is one of the major preventable causes of disease and death and severely threatening the developed countries (Centers for Disease Control 2013).

It is reported that participation in regular physical activity will help in protecting diseases and maintaining a healthy lifestyle. The main aspect of effective physical activity is to perform muscular activity in "moderate" or "vigorous" intensity. According to ACSM guidelines the moderate physical activity should be recommended for at least 30 minutes a day, 3-5 days per week or a total 150 minutes planned activities among adults (WHO 2010; Hallal et al. 2012; Pescatello 2014). Studies also showed that demographic, biological, psychological, cognitive, emotional attitudes and personal preferences affect physical activity behavior of adults with close or distance social environment affecting on lifestyle habits (Trost 2002).

Satariano et al. (2000) indicated that exercise programs including social contact and support are especially important for irregular exercised females living alone. Many studies indicated that group physical activity programs are rewarding for the elderly group by strengthening their friendship and encouraging exercise participation (Deforche and De Bourdeaudhuij 2000; Aranceta et al. 2001; Conn et al. 2002).

There are various studies stating that friendship with same and opposite gender have an effect on participating regular physical activity (Zarbatany et al. 2000; Vandell 2000; Sylvia-Bobiak, and Caldwell 2006; Johnson et al. 2007; Theodoropoulou et al. 2014). The social support of same and opposite gender friends can be linked directly to exercising together or indirectly to with encourage them for the participation exercise programs (Sallis et al. 1987). These social supports are differentiated depending on gender and age factors (Solomon et al. 2013). Although the foundations of movement structures have been developed at an early age, families and friends are playing very important positive role for participating the physical and sportive activities. Booth et al. (2000) reported that 60 years and older Australian adult having exercising friends are more active in their daily life. On the other side, Coakley and White (1992), stated males have negative impact on their girlfriends in participating leisure and sports activities.

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Hünük et al. (2013) have examined the social support factors with perceptions of the students depending on their physical activity levels and they showed that social support was playing an important affect for the individuals to participate in the PA.

It is identified that adolescents receive more support from their friends, than their parents to participate in physical activity but they perceive the most affective social support especially from the mother plays a decisive role in choosing the type of activity. In similar studies, it is also shown that peer and parents support for children and young adult persons are the most important social determinants. There are a significant relationship especially between social support by elder family members and physical activity level especially in pre-pubescent (Beets et al. 2010).

Recently, a study examining the level of participation in physical activity of individuals in Turkey, Ceker et al. (2015) reported that 31 percent of the participation rate for regular physical activities from data of 2229 male and female participants in different age groups. Also, participation rate was decreasing with increasing ages for both genders and this decrease was higher in females.

Although in recent years increasing physical activity participation rate from 3.5 percent to 30 percent reported in Turkey (TBSA 2010; Çeker et al. 2015), especially related to the effect of same and opposite gender friendship on active life style has not yet been investigated as social determinants to participate in the exercise programs.

The average smoking rates in OECD countries in the year of 2012 were 16.4 percent for females, 25.2 percent for males and totally 20.6 percent, while the same values are 10.7 percent for females, 37.3 percent for males and totally 23.8 percent in Turkey (OECD 2015). Researchers showed that adolescents' risk behaviors, such as smoking and alcohol use, were affected by their friends' behaviors (Ennett et al. 2008; Trucco et al. 2011).

The physical activity level increases with decreasing smoking rate (Soyuer et al. 2011). The results of the few studies investigating the relations between smoking and physical activities in Turkey are different from each other (Soyuer et al. 2011; Aksoy and Ziyagil 2015). Also there is no study related to the effect of type of friendships on physical activity participation and cigarette smoking rates in both genders.

Purpose of the Study

The aim of this study was to investigate the effect of same and opposite gender friendship on regular physical activity and cigarette smoking habits of individuals living in the province of Adana.

MATERIAL AND METHODS

This descriptive model study was conducted to examine the effects of SGF and OGF on regular physical activities and smoking habits in adults from Adana province. The data were collected during the months of May and June 2015.

Participants

The participants of this study consisted of 237 females and 316 males total 553 adult volunteers aged 16-40 years. The mean ages for male and female participants were 22.30±4.44 and 23.67±5.88 years, respectively. The data related to demographics, smoking and regular physical activity was collected through a questionnaire.

Instruments

All the descriptive data including demographic, physical activity and smoking habit about participants and their same and opposite gender friends were collected with respect to participants' responses.

In the survey five questions were asked to the participants. These are as follows, (1) age, (2) body height (3) body weight, (4) smoking habits and number of cigarettes smoked per day (5) whether they participate at least 30 minutes in a week for at least 3 days regular physical activities (as walking, cycling, sports activities and similar) or not. The following options were presented to the participants for the smoking habits; (1) don't smoke, (2) smoke less than one pack, and (3) smoke one pack or more. We have also calculated the Body Mass Index (BMI) with participants' self-reporting the body height and weight scores. BMI was calculated by dividing the body weight (kgs) to the height in meters squared.

Data Analysis

Cross tabulations and X^2 analyzes were performed to compare the groups' physical activity participation and cigarette smoking rates. Normality of data distribution was checked, using Kolmogorov-Smirnov tests. A nonparametric Mann-Whitney U test for two groups and Kruskall Wallis test for more than two groups were used for the comparison of means between participants and their same and opposite gender friends. The correlation coefficients were also used among variables.

RESULTS

This study aimed to determine the impact of friend's type on regular physical activities and smoking habits. Comparisons of the physical activity levels for male and female participants of the same and the opposite genders are shown in Tables 1 and 2. Comparison of mean age, body height, body weight, BMI, smoking and physical activity habits in both participants and their male and female friends were showed in Tables 3 and 4. In addition, the correlation coefficients among variables in male and female participants are presented in Tables 5.

It was found that the PA level was 21.20 percent and inactivity level 78.80 percent for male participants in Table 1. The PA and inactivity rates for male participants' SGF were 41.46 percent and 58.54 percent respectively. Whereas the PA and inactivity rates for male participants' OGF were 57.28 percent and 42.72 percent respectively. The rates of PA disturbances were significantly different at .05 level among male participants, their same and opposite gender friend groups.

On the other side, the PA level was 17.30 percent and inactivity level 82.70 percent for female participants.

The PA and inactivity rates for female participants' OGF were 38.82 percent and 61.18 percent respectively. Whereas the PA and inactivity rates for female participants' SGF were 17.30 percent and 82.70 percent respectively in Table 1. The rates of PA disturbances were significantly different at .05 level among female participants, their same and opposite gender friend groups.

It was also found that the non-smoker rate was 66.46 percent and smoker rate 33.54 percent for male participants in Table 2. The non-smoker and smoker rates for male participants' SGF were 58.86 percent and 41.14 percent respectively. Whereas non-smoker and smoker rates for male participants' OGF were 72.47 percent and 27.53 percent respectively. The rates of non-smoker and smoker disturbances were significantly different at .05 level among male participants, their same and opposite gender friend groups.

Table 1: Comparison of physical activity rates among participants, their male and female friends

Gender	*Groups*	*N*	*Exercise*	*N*	*Sedantary*	*N*	*Total*	χ^2	*p*
Male	Participants	67	21.20%	249	78.80%	316	100%	119.915	.000**
	Male friends	131	41.46%	185	58.54%	316	100%		
	Female friends	181	57.28%	135	42.72%	316	100%		
Female	Participants	41	17.30%	196	82.70%	237	100%	54.803	.000**
	Male friends	92	38.82%	145	61.18%	237	100%		
	Female friends	93	39.24%	144	46.84%	237	100%		

**significant at 0.01 level

Table 2: Comparison of smoking rates among participants, their male and female friends

Gender	*Groups*	*N*	*Non-smoker*	*N*	*<One pack*	*N*	*One pack*	*N*	*Total*	χ^2	*p*
Male	Participants	210	66.46 %	80	25.32%	26	8.23%	316	100%	34.38	.000**
	Male friends	186	58.86%	90	28.48%	40	12.66%	316	100%		
	Female friends	229	72.47%	65	20.57%	22	6.96%	316	100%		
Female	Participants	182	76.79%	47	19.83%	8	3.38%	237	100%	41.58	.000**
	Male friends	136	57.38%	73	30.80 %	28	11.81%	237	100%		
	Female friends	170	71.73%	60	25.32%	7	2.95%	237	100%		

**significant at 0.01 level

Table 3: Comparison of mean age, body height, body weight, BMI, smoking and physical activity habits in male participants

Variables	*Groups*	*N*	*X ± SS*	*Mean rank*	χ^2	*Sig.*	*df*	*Mann Whitney-U*
Age(years)	G 1. Participants	316	22.3 ± 4.45	485.12	4.6	0.098	2	N.D.
	G 2. Male friends	316	22.38 ± 4.52	490.64				
	G 3. Female friends	316	21.98 ± 5.14	447.73				
Body Height (cm)	G 1. Participants	316	177.55 ± 7.12	593.85	329.7	0.000**	2	G1>G3
	G 2. Male friends	316	177.18 ± 6.71	582.95				
	G 3. Female friends	316	167.24 ± 6.57	246.70				
Body Weight (kg)	G 1. Participants	316	74.97 ± 11.94	578.26	338.6	0.000**	2	G1>G3
	G 2. Male friends	316	75.88 ± 10.93	601.49				
	G 3. Female friends	316	59.93 ± 9.54	243.76				
Body Mass Index (BMI)	G 1. Participants	316	23.73 ± 3.17	534.42	155.4	0.000**	2	G1<G2
	G 2. Male friends	316	24.14 ± 3.01	570.02				G1>G3
	G 3. Female friends	316	21.42 ± 3.16	319.06				
Cigarette smoking (number/ a day)	G 1. Participants	316	1.86 ± 1.37	471.14	16.6	0.000**	2	G1<G2
	G 2. Male friends	316	2.14 ± 1.53	513.49				G1>G3
	G 3. Female friends	316	1.66 ± 1.23	438.88				
Physical Activity (3 days in a week)	G 1. Participants	316	1.79 ± 0.41	563.50	86.04	0.000**	2	G1>G2
	G 2. Male friends	316	1.59 ± 0.49	467.50				G1>G3
	G 3. Female friends	316	1.43 ± 0.5	392.50				

*significant at 0.05 level, **significant at 0.01 level, *** No Difference: N.D.

Table 4: Comparison of mean age, body height, body weight, BMI, smoking and physical activity habits in female participants

Variables	*Groups*	*N*	*X ± SS*	*Mean rank*	χ^2	*Sig.*	*df*	*Mann Whitney-U*
Age(year)	G 1. Participants	237	23.67 ± 5.88	343.92	1.9	0.381	2	N.D
	G 2. Male friends	237	24.67 ± 6.83	369.86				
	G 3. Female friends	237	23.96 ± 6.25	354.22				
Body Height (cm)	G 1. Participants	237	164.9 ± 6.9	270.19	283.8	0.000**	2	G1<G2
	G 2. Male friends	237	176.83 ± 7.6	538.95				
	G 3. Female friends	237	164.45 ± 6.95	258.87				
Body Weight (kg)	G 1. Participants	237	59.85 ± 10.56	278.08	247.6	0.000**	2	G1<G2
	G 2. Male friends	237	74.66 ± 10.77	527.03				
	G 3. Female friends	237	58.84 ± 9.05	262.89				
Body Mass Index (BMI)	G 1. Participants	237	21.97 ± 3.38	312.67	76.7	0.000**	2	G1<G2
	G 2. Male friends	237	23.86 ± 2.98	451.26				
	G 3. Female friends	237	21.77 ± 3.16	304.07				
Cigarette Smoking (Number/ A day)	G 1. Participants	237	1.56 ± 1.13	327.36	24.3	0.000**	2	G1<G2
	G 2. Male friends	237	2.07 ± 1.47	399.35				
	G 3. Female friends	237	1.6 ± 1.11	341.29				
Physical Activity (3 Days in a Week)	G 1. Participants	237	1.83 ± 0.38	407.50	34.4	0.000**	2	G1>G2
	G 2. Male friends	237	1.61 ± 0.49	331.00				G1>G3
	G 3. Female friends	237	1.61 ± 0.49	329.50				

*significant at 0.05 level, **significant at 0.01 level, *** no difference: N.D.

On the other side, the non-smoker rate was 76.79 percent and smoker rate 23.21 percent for female participants in Table 2. The non-smoker and smoker rates for female participants' SGF were 57.38 percent and 42.62 percent respectively. Whereas non-smoker and smoker rates for female participants' OGF were 71.73 percent and 28.27 percent respectively. The rates of non-smoker and smoker disturbances were significantly different at .05 level among female participants, their same and opposite gender friend groups.

In male participants, there was no significant difference in the mean age value among male participants, their SGF and OGF. The body height and weight of male participants was significantly higher than their OGF. The male participants had significantly different mean values in the variables of BMI, CS and PA in Table 3.

The female participants had significantly different mean values than their OGF in the all variables except PA in Table 4. In PA, the female participants had significantly different mean values than their SGF and OGF.

In Table 5, SGF of male participants were significantly correlated with age (r=.879, p<.01), body height (r=.265, p<.01), body weight (r=.253, p<.01), BMI (r=.293, p<.01), cigarette smoking (r=.443, p<.01), physical activity level (r=.396, p<.01).

In Table 5, OGF of male participants were significantly correlated with age (r=.795, p<.01), BMI (r=.128, p<.05), cigarette smoking (r=.270, p<.01), physical activity level(r=.229, p<.01).

In Table 5, SGF of female participants were significantly correlated with age (r=.809, p<.01), body height (r=.141, p<.05), body weight (r=.151, p<.05), cigarette smoking (r=.238, p<.01), physical activity level (r=.254, p<.01).

In Table 5, OGF of female participants were significantly correlated with age (r=.821, p<.01), body height (r=.262, p<.01), cigarette smoking (r=.272, p<.01), physical activity level (r=.364, p<.01).

DISCUSSION

The social support of friends from different and same gender can be directly to exercise together or indirectly to encourage them for the participation exercise programs (Sallis et al. 1987; Solomon et al. 2013). Similarly, friends can influence each other by not smoking or encouraging friends not to smoke friends.

In recent years, the rate of physical activity participation has been increased from 3.5 percent to 30 percent in Turkey (TBSA 2010; Çeker et al. 2015), it can be proposed that same and opposite gender friendship have an effect on participating regular physical activity and cigarette smoking have not been studied in Turkey. Therefore, this study aimed to determine the effect of the same and opposite gender friendship, on the physical activity participation and smoking habits of 553 volunteers living in Adana province.

In this study, no significant difference was observed among male participants, their same and opposite gender friend groups in the mean age. Additionally, the mean body weight of male participants were similar to same gender friends, but significantly greater than the opposite gender friends. These differences can be attributed to sexual dimorphism leading male to having greater stature than female. The male adults are 7 percent taller than female (Kirchengast 2010). Although body size variation between males and females occurs in the first three months of pregnancy (Bukowski et al. 2007), the basic structural differences emerge in adolescence. Differences until the beginning of adolescence are a result of low levels of sexual dimorphism (Wells 2007; Loomba-Albrecht and Styne 2009). In another study conducted with exercised adult participants, Nordic and aquatic exercised females had a significantly lower body weight and BMI values than sedentaries (Sentinelle et al. 2015).

Table 5: The correlations coefficients among male and female participants and their SGF and OGF

Variables	*Gender*	*Male friends*	*Female friends*
Age	Male (n=316)	0.879**	0.795**
	Female (n=237)	0.809**	0.821**
Body Height	Male (n=316)	0.265**	0.065
	Female (n=237)	0.141*	0.262**
Body Weight	Male (n=316)	0.253**	0.096
	Female (n=237)	0.151*	0.124
BMI	Male (n=316)	0.293**	0.128*
	Female (n=237)	0.093	0.117
Cigarette Smoking	Male (n=316)	0.443**	0.270**
	Female (n=237)	0.238**	0.272**
Physical Activity	Male (n=316)	0.396**	0.229**
	Female (n=237)	0.254**	0.364**

*significant at 0.05 level, **significant at 0.01 level,

On the other side, the physical activity level was 17.30 percent and inactivity level 82.70 percent for female participants.

The physical activity and inactivity rates for female participants' opposite gender friend were 38.82 percent and 61.18 percent respectively. Whereas the PA and inactivity rates for female participants' same gender friends were 17.30 percent and 82.70 percent respectively in Table 1. The disturbances of physical activity level were significantly different at .05 levels among female participants, their same and opposite gender friend groups.

It was also found that the non-smoker rate was 66.46 percent while smoker rate was 33.54 percent for male participants in Table 2. The non-smoker and smoker rates for male participants' same gender friend were 58.86 percent and 41.14 percent respectively. Whereas non-smoker and smoker rates for male participants' opposite gender friends were 72.47 percent and 27.53 percent respectively. The disturbances of non-smoker and smoker were significantly different at .05 levels among male participants, their same and opposite gender friend groups.

Smoking rate for male participants are lower than for same gender friends, while female smoking rates were similar to those of their same gender friends but lower than for opposite gender friend. Huang et al. (2014) stated that friendships were the most noticeable relationship with its transmitting behavioral influences, due to an increase in shared activities and opportunities for socialization especially during adolescence. These influence processes play a significant role in the development of risk behaviors in cigarette smoking (Huang et al. 2014). Chip (2014) mentioned that individuals have a tendency to choose friends based on a similar attitude to smoking. Soyuer et al. (2011) investigated the relationship between the incidence of smoking and physical activities among university students and they reported that male had a higher smoking rate with the 8.9 percentage. However, smoking frequency was reduced proportionally with the increasing physical activity.

Same gender friendship of male participants were significantly correlated with age ($p<.01$), body height ($p<.01$), body weight ($p<.01$), BMI ($p<.01$), cigarette smoking ($p<.01$), physical activity level ($p<.01$). Also, opposite gender friendship of male participants were significantly correlated with age ($p<.01$), BMI ($p<.05$), cigarette smoking ($p<.01$), physical activity level ($p<.01$).

On the other side, same gender friendships of female participants were significantly correlated with age ($p<.01$), body height ($p<.05$), body weight ($p<.05$), cigarette smoking ($p<.01$), physical activity level ($p<.01$). In addition the opposite gender friendship of female participants were significantly correlated with age ($p<.01$), body height ($p<.01$), cigarette smoking ($p<.01$), physical activity level ($p<.01$).

In the study of Sevimli (2008), on exercised and non-exercise groups including 412 adult participants with the average BMI of 24.26±2.87, it was found that exercise group had a lower average BMI than that sedentary groups with the mean BMI of 25.78 ± 6.69. The mean smoking percentages were significantly correlated with the same and opposite gender friends' means for both genders.

In general, regular physical activity participation rate of male participants with the 21.29 percent was greater than that of female participants with 17.30 percent value. Similar to this study, OECD, WHO and CDC reports stated that smoking rate of male was higher than females. Researchers have shown that family, friends and peers, can leads to the acquisition of smoking and eating behaviors and habits (Simons-Morton and Chen 2006; Simons-Morton and Farhat 2010). This study and other studies have shown that the knowledge gained from a friend when comparing perceived support from other people, is easily understood and internalized. This means that the effect of friends' and peer influence is more powerful than those of other social impacts. (Schofield et al. 2007; Berten and Van Rossem 2011).

Male and female participants' regular physical activity participation rates are significantly different from those of the same gender friends, and opposite gender friends. In both two genders, there were significant correlations between participants and their same and opposite gender friends in physical activity level. Compared with female participants, male participants engaged in physical activities at higher rates compared with the same and opposite gender friends. Clearly, it was observed that females preferred more exercised males and females friends compared to males. These results were consistent with friends influencing PA. Understanding friendship influences from childhood to adult can facilitate the

promotion of lifelong healthy habits. PA with friends should be considered in health promotion programs (Maturo and Cunningham 2013).

In the study of Salvy et al. (2009), supporting the results of this study, in a laboratory environment, the influence of friends and peers on obese and non-obese youth in being physically active has been investigated and reported that they supported both groups' participation in physical activities. Obese youth are motivated by adults, peers, friends in terms of being more physically active, but this case has not been observed in non-obese youth. It was also found that the duration of the activities with friends, were longer than the duration of the activities while alone. Many researchers reported that participating in physical activities while engaging interactively with friends is healthy – and advocate for young people to join sports teams (Duncan et al. 2005; Salvy et al. 2009). Physical activity participation of young people clearly has positive effects when friends participate together in exercise programs (De Bourdeaudhuij et al. 2005; Duncan et al. 2005).

Darlow and Xu (2011) examined the effect of social support from the close social environment on physical activity habits with the romantic and same gender friends and they reported that the influence of a romantic friend and perceived support of the people to make friends with exercise by increasing the exercise levels. Males exercise level has been reported to be associated with the exercise level of his partner and friend at different levels. It has been found that there was close environmental effect on the exercise habit. It was reported that this may vary according to the perceived support the participant perception. Park et al. (2014) in Korea, investigated the motivational and social cognitive strategies for participation in physical activities by older adults. They also mentioned that goal setting, social support from family, as well as factors such as self-efficacy are positively affecting factors for physical activity participation. Researches similar to the results of this study show that friends and peers and the environment, are important factors in participation in physical activities (Duncan et al. 2005; Salvy et al. 2009; Sylvia-Bobiak and Caldwell 2006; Kim and Cardinal 2010).

CONCLUSION

In conclusion, generally the average height, body weight and BMI values vary depending on gender. For both male and female participants, regular physical activity levels and smoking habits are more greatly affected by their interactions with same gender friends than opposite gender friends. As a result, it should be known that same gender friendship was more effective than opposite gender friends in order to increase the participation in group training programs for regular physical activity. It was found that friends influencing each other's physical activity level. Further research is needed to understand the magnitude of influences and to explore the potential for using same and opposite gender friendship, to promote a lifetime of optimal physical activity habits.

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