



The impact of physical activity on self-esteem and how it may affect adolescents living under family conflict

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Abstract-English

The main topic of this study is self-esteem of adolescents, what impact family conflict may have on their self-esteem, and possible buffering effects of physical activity. Available data from ICSRA was used for this study with a representative sample of 1806 Icelandic high school students. Analysis of Variance was carried out to test for main and interaction effects. In line with former studies the results indicated that living under family conflict conditions predicted low self-esteem for both girls and boys. Furthermore, adolescents who were physically active had better self-esteem than adolescents who were low in physical activity, this applied especially for boys. Physical activity could be considered as one buffer for living under negative home conditions for boys, but for the girls that did not apply.

Keywords: self-esteem, family conflict, physical activity, buffering effect, adolescents

Abstract-Icelandic

Markmið rannsóknarinnar var að skoða sjálfstraust hjá unglingum sem búa við erfiðar heimilisaðstæður og athuga hvort hreyfing gæti dregið úr neikvæðum áhrifum slíkra aðstæðna. Fyrirliggjandi gögn frá Rannsóknum og Greiningu voru notuð við gerð rannsóknarinnar þar sem úrtak samanstóð af 1806 íslenskum menntaskólanemum, á aldrinum 16-19 ára. Könnuð voru meginhrif og samvirkni erfiðra heimilisaðstæðna og hreyfingar á sjálfstraust. Í samræmi við fyrri rannsóknir sýndu niðurstöður að bæði drengir og stúlkur sem bjuggu við erfiðar heimilisaðstæður voru með lægra sjálfstraust en þeir sem bjuggu ekki við erfiðar heimilisaðstæður. Niðurstöður sýndu einnig að unglingar sem stunduðu hreyfingu í meðallagi eða mikið höfðu hærra sjálfstraust en þau sem gerðu það ekki. Þá gáfu niðurstöðurnar til kynna að hreyfing samkvæmt niðurstöðum getur dregið sérstaklega úr líkum þess að hafa lágt sjálfstraust hjá drengjum sem búa við erfiðar heimilisaðstæðir.

Efnis orð: sjálfstraust, erfiðar heimilisaðstæður, hreyfing, minnkuð áhrif, unglingar

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The influence of family conflict on self-esteem

The self-esteem of adolescents is a comprehensive concept and is influenced by many factors (Killeen & Forehand, 1998). Individuals social environment seems to have the most impact on self-esteem (Slater & Haber, 1984). Parental support is a big influence and has been regarded the most credible and valued source of information about the self for adolescents (Killeen & Forehand, 1998). Former studies have shown that children who lived under negative life conditions were likely to be low on self-esteem (Slater & Haber, 1984).

Studies have indicated that parental conflict have negative affect on children, also they respond negatively to inconsistency often followed by conflict between parents (Jekielek, 1998). In an article published the year 1998, the author Jekielek tested whether children coped better with parental conflict that was ongoing, or divorce of parents. Results indicated that parent separation was better for emotional health of children than living in high family conflict condition, which may cause them emotional stress (Jekielek, 1998). A study conducted in 1984 addressed the effect of continued familial conflict on adolescent adjustment and self-concept (Slater & Haber, 1984). Results of the study indicated that high ongoing conflict in intact or divorced homes lead to adolescents having more anxiety, lower self-esteem and less feelings of control (Slater & Haber, 1984).

Mandera and Murray (2000) wanted to see how marital status, and family functioning affected adolescents self-esteem. Participants were fifteen year old high school students and their parents (Mandara & Murray, 2000). The results significantly showed gender difference, boys living with both parents were higher in global self-esteem, self-control, feelings of personal power and total self-esteem compared with boys who were living with only a single

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parent (Mandara & Murray, 2000). For the girls parental status did not have nearly as much affect their total self-esteem or perceptions of family functioning (Mandara & Murray, 2000).

The influence of Physical activity

It is interesting to investigate whether physical activity influences emotional well-being in a good way such as having a better self-esteem in adolescents living under family conflict conditions. The empirical literature supports the hypothesis that physical activity is associated with psychological health (Netz, Wu, Becker, & Tenenbaum, 2005). In a meta-analysis from the year of 2005 researchers examined data from 36 studies linking physical activity to well-being in older adults without clinical disorder (Netz et al., 2005). Physical activity had most effect on self-efficacy; improvements in cardiovascular status, strength, and functional capacity were linked to well-being improvement in overall emotional well-being, (Netz et al., 2005). According to Kirkcaldi, Shepard and Siefen (2002) most of the studies of advantages of regular physical activity, had the tendency to focus on adults rather than children and adolescents. They also argue that little attempt has been made to examine whether adolescents who exercise more regularly have a better self-image along with other overall factors such as educational attainment, enhanced interpersonal relations, physical and psychological health compared with less active adolescents (Kirkcaldy, Shephard, & Siefen, 2002). Based on these arguments Kirkcaldi and colleagues examined associations between the extent of participation in endurance sport, self-image, physical and psychological health and overall lifestyle of adolescents. The sample consisted of adolescents (aged 14–18 years) which were given a series of questionnaires aimed at assessing anxiety-depression, trait addiction, physical ill-health reports, and self-perception of self-image and parental acceptance (Kirkcaldy et al., 2002). The results showed that adolescents who had endurance exercise as a part of their lifestyle were more likely to have a positive self-image. Adolescents involved in regular physical activities scored lower in anxiety and depression, also they

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scored higher in physical and psychological well-being than adolescents who were not physically active (Kirkcaldy et al., 2002).

In the adolescence years, developmental, social and cognitive changes occur as well as physical (Bowker, 2006). For some adolescents these changes lead to a different view of how they feel about themselves (Bowker, 2006). There are distinct domains when general self-esteem is estimated, physical self-esteem is one of the most important during adolescent years (Bowker, 2006). According to Harder (1998), the self-concept becomes more wide and more cognitively complex with age.

Bowker's research conducted in 2006 was emphasized on the importance of physical self-esteem since it may have a strong indirect relationship with overall self-esteem. This is very important factor since it meant narrowing the part of the self-esteem concept to see what had the most influence on adolescents being physically active (Bowker, 2006). She examined in her research the relationship between self-esteem and adolescents being involved in sports where she emphasized on physical self-esteem and its role in the general self-esteem and sport participation. Participants were divided into two groups depending on age (pubertal stage), younger group consisted of 5-6 graders and the older 7-8 graders which gives at least the opportunity to compare these age groups. Results revealed that there was no gender difference in the way participants felt about their physical appearance. It was in that way a contradiction to the popular belief that women are in general more dissatisfied with the way they look. What results also showed was that sport-participation was connected with a more positive self-image and higher self-esteem, especially having influence on physical self-esteem which can lead indirectly to better overall self-esteem in adolescents (Bowker, 2006).

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Physical activities buffering effects

In general physical activity is considered an important component of well-being, and one of the numerous benefits of physical activity that has received increased attention is its moderating effect on stress (Brown, 1991). It has been shown that stressful life events relate to development of psychological and physical health problems (Rabkin & Struening, 1976).

One moderating factor in life stress could be physical activity. Variety of research have shown the positive influence that physical activity has on both physical and psychological health, and research also conclude that stressful life events are less likely to affect a physically fit person (Blumenthal et al., 1990). In Holmer and Roth's study (1985) they were interested whether stressful life events and physical activity would interact. They wanted to see whether physical fitness could moderate the relationship between life stress and physical and psychological problems. Participants were on average 19 years old, reported the frequency of stressful life events and then their physical fitness was assessed. The results of the study showed that adolescents who experienced high life stress were more likely have physical and psychological health problems than those who were low in life stress. What results also showed was that physical fitness was a reliable moderator variable in the relationship of stress-illness. Lastly, participants who were both high in life stress and were low in physical fitness developed more physical and psychological problems (Roth & Holmes, 1985).

Similar results came from Brown in his research (1991) where he tested the stress-buffering effects of physical activity. Participants were 110 university students. Measures in the study were exercise, life stress, illness and psychological distress, to asses perception of self-worth and self-esteem the Rosenberg scale was used. Results reviled that participants who scored low in physical fitness, were more vulnerable to the harmful effects of life stress and had more frequent health center visits than who scored high in physical fitness. According

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to these results being physically active alleviates the effects of life stress (Brown, 1991). More positive influence of physical activity and its buffering effect is revealed in Sigfusdottir, Asgeirsdottir, Sigurdsson, & Gudjonsson article (2011). The relationship between physical activity and depressed mood was investigated, in adolescents living under conditions family conflict conditions. Results of the research showed that family conflict increased the likelihood of depressed mood among adolescents especially for girls and physical activity decreased the effects of depressed mood. Results also revealed that physical activity plays a more important role among those adolescents living in under family conflict (Sigfusdottir, Asgeirsdottir, Sigurdsson, & Gudjonsson, 2011).

In this study the influence of physical activity on adolescents self-esteem will be tested, how physical activity may affect self-esteem of adolescents living under family conflict. Based on former literature reviewed above the following hypothesis are put forward.

Hypothesis 1

Family conflict increases the likelihood of low self-esteem among adolescents

Hypothesis 2

Physical activity increases the likelihood of high self-esteem among adolescents

Hypothesis 3

The negative effects of family conflict on self-esteem among adolescents are stronger when physical activity is low than when it is high.

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Method

The Data in this study came from ICSRA (Icelandic Center for Social Research and Analysis) a research center which in the past 14 years has specialized in well-being of young people in Iceland. The survey used in this study was conducted in October 2007 and anonymous questionnaires were distributed by teachers and research assistants.

Participants

Participants were Icelandic high school students who attended to school the day questionnaires were administered (Statistics, Iceland 2007). In total 11229 high school students participated in the study, where gender ratio was considerably even, 5405 were male and 5690 female, 134 were missing for the gender question. For this study, a randomly selected sample was chosen of 1806 participants, 48.3 % male and 51.7 % were female. The distribution of age of the adolescents reached from 16-19 years ($M=17.1$; $SD=1.1$). Most participants were born in 1991, 32.4 %, which means they were 16 years old at the time, 27.5% were born in 1990, 21.4 % were born in 1989 and only 18.7% were born in 1988.

Materials and procedure

In this research, the sample is based on questionnaires that are thorough and have been developed by the research Institute of Pedagogy and Education in Iceland, then later employees of ICSRA (Statistics, Iceland 2007). The questions are advanced by professionals in social studies where there are strict requirements of reliability and validity. The questionnaires were sent to high schools in Iceland where teachers were in charge of their distribution to the students. Participants were instructed to not write down their names or social security number on the questionnaire so their answers could not be traceable. They were instructed to answer all questions in the survey conscientiously and seal the

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questionnaire in blank envelopes upon completion. At any point the students withdraw themselves from answering the questionnaire.

Measures

Independent variables

Family conflict

To measure family conflict within the adolescent home, three questions in the questionnaire were used. The participants were asked whether they had experienced the following life-event in the prior 12 months. 1) had witnessed a severe argument between their parents, 2) had a severe argument with their parents, 3) had experienced physical violence at home. Answer possibilities ranged from 0="no", 1 ="yes, 12 months ago or less", 2="yes, within the last 12 months, 3="yes, within the last 30 days". Participants were divided in two groups, group 1, where adolescents had experienced one of the three events listed above within the last 12 months before the survey, (yes= 1, total 17.4%),). Participants who either had been subject to these events more than a year ago or had not been subject to any of the events listed above, were defined as not having experienced family conflict in the last year were (no=0, total 82,6%).

Physical activity

To measure physical activity of the participants, five questions in the questionnaire were used which both were a measure of frequency and effort of physical activity. Participants were asked if and how often they did the following; 1) are involved in sports or training 2) had participated in sports and physical activity outside school activities, 3) are physically active or compete as part of sports a club, 4) are physically active, school and sport club excluded, 5) worked out physically until winded or sweating. Answer possibilities ranged from 0="almost never", 1="once a week", 2="two times a week", 3="three times a week, 4="four-six times a

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week”, 5=“almost every day”. The items were computed into a scale ranging from 0 to 25 with Chronbach alpha =.81. Frequency of the physical activity of participants was divided to three groups depending on how physically active they were. This was done by calculating mean = 8.9 and standard deviation = 6.2. One standard deviation below the mean represented low physical activity group (total of 419 or 25.0%, the second group (medium physical activity) scored within the one standard deviation of the mean (total of 838 or 49.9 %). The third and final group was the high physical activity group, they scored around one standard deviation above the mean (total 421, or 25.1%).

Dependent variable

Self-esteem

As a measure of self-esteem, the Rosenberg self-esteem scale (RSES) was used which is a ten item Likert scale where there are 5 negative self-esteem questions and 5 positive questions were used. Participants were asked how well the 10 following statements applied to them 1) I am at least as worthy as other people, 2) I have many good qualities, 3) I can do things just as well as other people 4) I have a positive attitude towards me, 5) over all I am pleased with myself. Answer possibilities ranged from 0=“applies very well for me”, 1=“applies rather well with me”, 2=“Fairly does not apply with me, 3=“does not apply with me”. The items were rated on a four point scale, 0= “strongly agree”, 1=“agree”, 2=“disagree”, 3=“strongly disagree”. The five positive items were recoded, to fit the new variable where all items were combined into a scale ranging from 0-40, with Chronbach’s alpha=.85. Higher scores represented higher self-esteem

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Statistical analysis

In this study self-esteem was tested for adolescents living under family conflict and those who were not living under family conflict, gender difference was also examined. For all statistical analysis SPSS 11.0 was used.

To examine main effects of family conflict, physical activity and gender on self-esteem of the adolescents Univariate analysis of Variance (Aanova) was carried out. Interaction effects were also be examined between family conflict, physical activity and gender with Anova. A model was developed in order to examine the hypotheses put forward earlier, illustrated in Figure. 1.

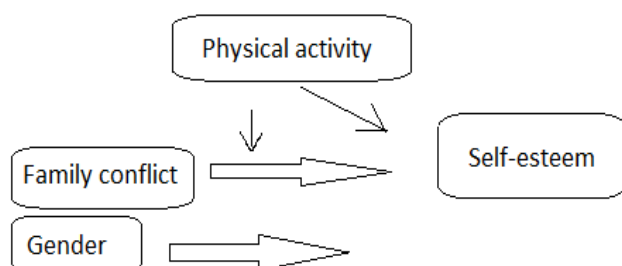


Figure 1 A model of the effects of family conflict, physical activity and gender on self-esteem

Results

Main effects

The descriptive statistics can be seen in Table 1. Table 2 below shows the results from the Anova indicating that all three factors; physical activity, family conflict and gender showed significant main effects on the dependent variable self-esteem. Results revealed that on average boys were significantly higher in self-esteem than girls; there was difference between groups in physical activity of the adolescents and that e role of those who lived under family

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conflict scored statistically lower on family conflict on their self-esteem than those who did not live under such conditions.

Interaction effects

Whether physical activity and family conflict would interact in their effects on the adolescent's self-esteem, is revealed in Table 2. It shows the interaction between family conflict and physical activity is non-significant $p > .05$. Interaction between gender and family conflict also turned out to be non-significant $p > .05$.

However the interaction between gender and physical activity turned out to be significant $p < .05$ also the three way interaction between family conflict, physical activity and gender turned out to be significant $p < .05$. These significant interactions indicate physical activity had significantly stronger effects on the self-esteem of boys than girls.

The three way interaction reveals that the interaction between family conflict and physical activity are different between girls and boys. The interaction effect turned out to be significant for girls but not for boys, but in the opposite direction than was expected. Girls who were in the "high physical activity" group scored significantly lower on self-esteem than both low and average physical activity groups. The estimated marginal means in Figure 2 demonstrates this graphically.

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Table 1

Descriptive statistics of the mean levels of dependent variable self-esteem, standard deviations and number in each category by family conflict, physical activity and gender.

| | Physical activity | Mean boys/girls | Std.deviation | N boys/girls |
|--------------------|-------------------|-----------------|---------------|--------------|
| No family conflict | 0 | 22.28/19.63 | 5.25/6.928 | 96/130 |
| | 1 | 23.08/21.78 | 5.32/5.64 | 400/499 |
| | 2 | 24.66/22.09 | 4.5/5.98 | 126/82 |
| Total | | 23.28/21.42 | 5.2/5.9 | 622/711 |
| Family conflict | 0 | 18.39/19.90 | 4.82/6.14 | 18/32 |
| | 1 | 21.65/19.32 | 5.70/6.16 | 78/111 |
| | 2 | 21.93/16.18 | 5.87/7.80 | 31/11 |
| Total | | 22.93/21.03 | 5.34/6.09 | 749/565 |

Table 2

Tests of between-subjects effects with self-esteem as a dependent variable

| Source | Df | F | p |
|----------------------------|----|--------|-------|
| <i>Main effects</i> | | | |
| Family conflict(FC) | 1 | 29.595 | P<.05 |
| Physical activity(PA) | 2 | 3.769 | P<.05 |
| Gender | 1 | 19.529 | P<.05 |
| <i>Interaction effects</i> | | | |
| FC*PA | 2 | 2.206 | P>.05 |
| FC*Gender | 1 | .000 | P>.05 |
| PA*Gender | 2 | 3.316 | P<.05 |
| Gender*PA*FC | 2 | 4.175 | P<.05 |

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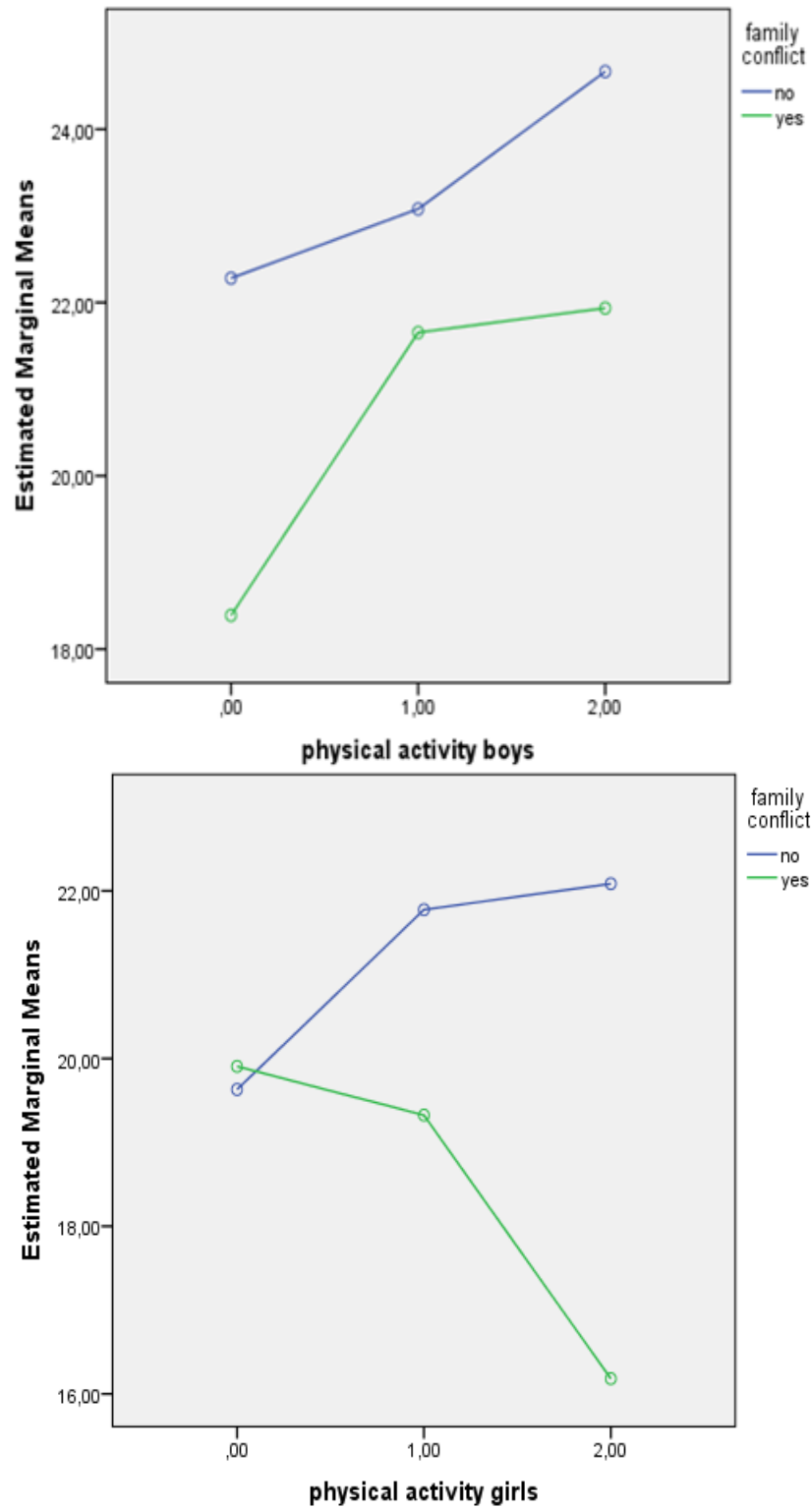


Figure 2. Estimated marginal means for self-esteem among girls and boys by family conflict and physical activity.

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Discussion

In this study the influence of physical activity on adolescents self-esteem was studied, in particular how it may affect self-esteem of adolescents living under condition of family conflict. First the results indicated that, living under family conflict conditions predicted low self-esteem for both girls and boys. This suggests that they had worse self-esteem if they had experienced family conflict regardless of being physically active or not. These results are in line with Haber & Slater's study (1998) where they revealed that high ongoing conflict in the home lead to adolescents having more anxiety, lower self-esteem and less feelings of control. They are also consistent with Jekielek's study where results showed that children were more emotionally stressed if they were living under family conflict than if they were not living under family conflict (Jekielek, 1998).

Secondly, the results indicated that when adolescents were medium or highly physically active they had better self-esteem than those who were low in physical activity, this applied especially to boys. Former studies, such as Kirkcaldys study (2002) support the importance of physical activity for adolescents, where his results showed that adolescents who had endurance exercise as a part of their lifestyle were more likely to have a positive self-image, also they scored higher in physical and psychological well-being than adolescents who were not physically active (Kirkcaldy et al., 2002). They are also consistent with Bowkers results (2006) where sport-participation was connected with a more positive self-image and higher self-esteem.

When physical activity was compared for both adolescents living under family conflict and not, the boys being more physically active predicted having higher self-esteem.

Hence, third hypothesis predicting that the negative effects of family conflict on self-esteem would be stronger when physical activity is low than when it is high for the adolescents, was not supported.

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The results revealed that physically activity, did not serve as a buffer for adolescents living under family conflict conditions. However, when the interaction was tested for girls and boys separately, results indicated that boys living under family conflict who were either average or highly physically active scored higher on self-esteem than boys who were not physically active. Hence, for the boys, the results line up with Roths & Holmes study (1985) indicating that physical fitness was a reliable buffer in the relationship of stress-illness and that participants who were both high in life stress and were low in physical fitness developed more physical and psychological problems (Roth & Holmes, 1985). They are also in line with Browns study (1991) where being physically active alleviates the effects of life stress (Brown, 1991). For the girls physical activity did not serve as a buffer, as a matter of fact for the girls who were living under family conflict conditions and were highly physically scored the lowest on self-esteem, contrary to what was hypothesed and former studies such as Sigfusdottir's study (2012) has indicated. In their study the relationship between physical activity and depressed mood was investigated, their results revealed physical activity buffered the effects of family conflict on depressed mood among adolescents living family conflict conditions. .

Finding of this study supports research question that physical activity has increasing effects their self-esteem of adolescents who were not living under family conflict condition. Furthermore family conflict increases the likelihood of adolescents possessing low self-esteem for both girls and boys. Physical activity of adolescents and living under family conflict condition clearly affected the self-esteem of adolescent boys and girls in this study, but quite differently. The buffering effect for the boys turned to be what was expected in the beginning of this research. All though it was not significant results indicated that the negative

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effects of family conflict on self-esteem of boys that were living under family conflict condition were stronger when physical activity is low than when it is high. However, the interaction was significant for girls but quite different than was expected. The girls who were living under family conflict condition and were high in physical activity scored lowest on self-esteem., it needs to be noted that only 11 participants were in that group.

This study has some limitations which need to be addressed. First that it is cross-sectional which means it cannot tell us about causal relationships. There for the causality between physical activity, family conflict and self-esteem cannot be determined. Secondly, the measures in the study were self-reports and that is not always reliable for many reasons. The students for example may have exaggerated sport-participation and when there is a sensitive topic such as family-conflict they may have not accurately reported having a rough family situation at home. It needs to be noted that although the sample used in this study was quite large, or 1809 participants all randomly selected, only 315 of the participants had experienced family conflict which is very positive but should be kept in mind when considering results.

Results of this study stress out the complexity of self-esteem of adolescents and its interaction with physical activity, especially among adolescents living under family conflict. Next what could be examined might be why there is gender difference for adolescents living under family conflict conditions. Possibly even evaluate that different self-esteem processes might exist for girl and boys especially in their adolescent years.

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