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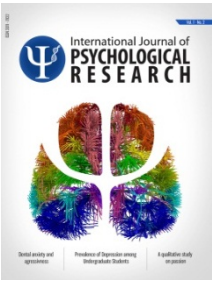
Prevalence of Depression among Undergraduate Students: Gender and Age Differences

Estudio comparativo de la prevalencia de la depresión entre estudiantes universitarios: Diferencias de edad y género.



Research

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ABSTRACT

Depressive disorders are the most typical disease affecting many different factors of humanity. University students may be at increased risk of depression owing to the pressure and stress they encounter. Therefore, the purpose of this study is comparing the level of depression among male and female athletes and non-athletes undergraduate student of private university in Esfahan, Iran. The participants in this research are composed of 400 male and female athletes as well as no-athletes Iranian undergraduate students. The Beck depression test (BDI) was employed to measure the degree of depression. T-test was used to evaluate the distinction between athletes and non-athletes at P≤0.05. The ANOVA was conducted to examine whether there was a relationship between level of depression among non-athletes and athletes. The result showed that the prevalence rate of depression among non-athlete male undergraduate students is significantly higher than that of athlete male students. The results also presented that level of depression among female students is much more frequent compared to males. This can be due to the fatigue and lack of energy that are more frequent among female in comparison to the male students. Physical activity was negatively related to the level of depression by severity among male and female undergraduate students. However, there is no distinct relationship between physical activity and level of depression according to the age of athlete and non-athlete male and female undergraduate students. This study has essential implications for clinical psychology due to the relationship between physical activity and prevalence of depression.

RESUMEN

Los desórdenes depresivos son la enfermedad más típica que afecta diferentes dimensiones del ser humano. Los estudiantes universitarios pueden estar bajo el riesgo de la depresión debido a la presión y estrés que enfrentan normalmente. Por lo tanto, el propósito de este estudio consiste en comparar el nivel de depresión entre hombres y mujeres atletas y no atletas que son estudiantes universitarios de una universidad privada en Esfahan, Iran. La muestra de esta investigación está compuesta por 400 hombres y mujeres atletas y no atletas iraníes

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que son estudiantes universitarios. El test de depressión de Beck (Beck depression test -BDI) fue utilizado para medir el grado de depresión. Una prueba t fue usada para evaluar la diferencia entre atletas y no atletas en P≤0.05 El ANOVA fue llevado a cabo para examinar si había relación entre el nivel depresión entre atletas y no atletas. El resultado mostró que el índice de prevalencia de depresión entre los estudiantes no atletas hombres era significativamente más alta que aquellos que si lo eran. Los resultados también presentaron que el nivel de depresión entre mujeres estudiantes es mucho más frecuente que en hombres. Esto se puede deber a que la fatiga y falta de energía que es más frecuente a comparación con los varones. La actividad física estuvo negativamente relacionada al nivel de depresión por la severidad entre hombres y mujeres. Sin embargo, no hay relaciones diferentes entre la actividad física y el nivel de depresión de acuerdo a la edad de los atletas y no atletas hombres y mujeres. Este estudio tiene implicaciones esenciales para la psicología clínica o la psicología de salud debido a la relación entre la actividad física y la prevalencia de la depresión.

Palabras clave:
Depresión, actividad física, prevalencia, estudiantes universitarios.

1. INTRODUCTION

Psychopathy and in particular, depressive disorders, is a trend that comes with industrialization in the societies as nations move away from the conventional to being developed, and infected illnesses give way to mental disorders and heart diseases which are again suffering from psychological disorders (Apfel, 2004; Athari, Ghaedi & Kosnin, 2013). Depression is a disorder which is very frequent in most of the societies, especially among students. These causes refuse students from fantastic possibilities for success, career and an appealing upcoming (Avison & McAlpine, 1992; Bhave & Nagpal, 2005). Depressive disorder is also mentioned as one the disposition issues and is becoming more frequent day by day. Thus, considering its side results on the soul and mind of people which may even go so far as to make them “commit suicide”, the requirement to decline depression level of people is obvious. Many techniques have been presented and used by specialists to settle or reduce the level of this problem (Paffenbarger, Lee & Leung, 1994; Pataki, 2000). One of the methods which have effect on the depression of students is doing sport activity. Physical activities are considered to a special place among students to reduce the level of depression. However, several studies should be carried out to evaluate the effect of physical activities on level of depression among the athletes and non-athlete students (Armstrong & Oomen-Early 2009). Their result showed that athletes had considerably higher levels of self-esteem and lower levels of depression compared to the non-athletes. This can be due to a complex interaction of psychological and neurobiological mechanisms underlying, mediating and/or moderating these effects (Armstrong & Oomen-Early 2009; Strohle, 2009). In this regard; Jerstad, Boutelle and Ness (2010) investigated the association between the athletic activity of undergraduate and graduate female students with the prevalence of post-college depression diagnoses. Their result revealed that physical activity substantially decreased risk for a future increase in depressive symptoms due to physical activity has beneficial effects on cardiovascular health (Strohle, 2009; Dunn, Trivedi, Kampert, Clark & Chambliss, 2005). Yang et al. (2007) also reported the prevalence of depressive symptoms in male and female collegiate athletes. Their result illustrated that female athletes had 1.32 greater odds of experiencing symptoms of depression compared to male student athletes (Karen, Johnson & Lindsay, 2011). There are many studies that revealed the prevalence of depression among adolescents (Yang et al., 2007; Jerstad et al., 2010; Karen et al. 2011). Their result exhibited that inverse relationships were found between sports activity and depressive symptoms among middle and older adolescents. Many studied also have been conducted regarding to the relationship between sports and depression (Mobily, Rubinstein, Lemke & Wallace, 1996; Lucas, Mekary & Pan 2011). Their result showed that higher levels of physical activity were associated with lower depression risk. Several mechanisms were proposed to express the effect of physical activity on level of depression such as increased sense of self-esteem, diversion from negative thoughts, perception of control and mastery, increased circulating beta-endorphin and monoamine levels, alterations in hypothalamic-pituitary-adrenal axis and brain plasticity, and neurogenesis enhancement (Lucas et al., 2011). In addition the other researcher (Franck, De Raedt,

Dereu & Abbeele 2007; Armstrong & Oomen-Early 2009) reported the impact of academic setting on self-esteem, and depression symptom and its correlation with self-esteem and social support among university students. However, there is limited attention to comparison the level of depression between students who participant in physical activities and those without physical activities. Hence, the aim of the present study is to clarify the relationship between physical activities and level of depression. Furthermore, the level of depression by severity according to the age of athlete and non-athlete male students was investigated.

2. METHOD

2.1. Research Design

First, his study investigated whether there is a difference between male and female athlete students in terms of level of depression. Next, this study evaluated whether there is a difference between male and female athletes and non-athletes in terms of level of depression. This study also tried to determined whether the level of depression changes by performing physical activity. The final analysis investigated whether there is a relationship between physical activity and level of depression according to the age of athlete and non-athlete male and female undergraduate students. Physical activity was served as the independent variable.

2.2. Data Sampling and Population Size

In this research, sampling was of stratified random type; Beck Depression Inventory–II (1996) in addition of a set of personal questionnaire was allocated among athlete and non-athlete students and after evaluating the data attained from surveys, students who have no history of depression and other specific illness were chosen using a systematic random technique. In this study, undergraduate students who participating in an extracurricular activity involving physical movement at least 2 times per week were selected and were evaluated by self-reported effort. The initial sample in this research was composed of 400 male and female athletes as well as no-athletes Iranian undergraduate students from two departments of Private University in the Esfahan. Of these, 160 participants including 80 female athletes and 80 non-athletes students as well as 180 male athletic and non-athletic students were also chosen for further investigation. The mean age of the participants was 21.45 years (SD = 1.66).

2.3. Procedure

Prior to pilot examining, recruiting, and collecting data, permission for this research was attained from both departments including education and sports science of the Private University of Esfahan. The questionnaire provideed according to the Beck Depression Inventory–II (1996) was randomly allocated among male and female athlete and non-athlete participants who were chosen via multiple levels randomized case appropriates to the population size of each department and with respect to both athlete and non-athlete of the respondents in order to maintain a sample associated with these two factors. This test was composed by 21 four-answer questions. A score ranging from zero to three was carried out to each question. According to the responds they will be assigned scores out of 21.

2.4. Statistical Methods

The Beck Depression Inventory was used to collect the data. T-test was used to evaluate the distinction between athletes and non-athletes at $P \leq 0.05$ using the application (16 SPSS) for assessing the information. The ANOVA and Pearson's coefficient correlation was conducted in order to examine whether there is a relationship between level of depression among non-athletes and athletes and their ages.

3. RESULTS

3.1. The Effect of Physical Activities on Level of Depression among Male and Female Undergraduate Students of Private University in Esfahan

Table 1 presents the prevalence of depression by severity according to demographic characteristics of the participants. According to the information collected it seems that 66 athletic male students out of 90 (equal to 73.4%) have developed natural depression. Fourteen athletic students (15.6%) have developed mild depression. Four athletic students, 4.4% suffer from relatively moderate depression, and finally four students, 2.2%, are affected by severe depression. However, excessive depression was not observed in this group. In the group of non-athletic male students, 59 (65.6%), 20 (22.3%), 6 (6.6%) and 3 (3.3%) have developed, natural, mild, relatively moderate and moderate depression, respectively. Two students (2.2%) suffer from severe depression but no one was affected by excessive depression. Depression among male athletic students is almost similar to those of female athletic students (Fig 1a). Furthermore in the group of athletic female students it

can be seen 16.2%, 6.1% and 5% suffer from mild, relatively moderate and moderate depression respectively. Non-athletic female students presented similar trend (Fig 1b).

3.2. Determination Level of Depression by Severity According to the Age of Athlete and Non-Athlete Male Students

Table 2 compares the level of depression among athlete male students according their ages. It can be seen that 73.4% (n=66) of students in range of 18 to 20 age had natural depression while, 71.1% (n=64) of students between 20 to 22 age had natural depression. The corresponding value for students in the age range of 22 over was 70% (n=60). 15.6% (n=14) of the students (18 to 20 age) whom scored above 11, had a mild depression. However, these values were 18.9% (n=17) and 14.4% (n=13) for students with age range 20 to 22 and 22 over respectively. Around 5.5% (n=5) of students (18 to 20 age) with score more than 17 had relatively moderate depression. Compared to that 3.3% (n=3) had moderate and 2.2% (n=2) had severe depression. However, 8.9% (n=8) of student between 20 and 22 age suffer from relatively and moderate depression. Aforementioned values increased to 13.4% (n=12) for students in age range 22 over with similar severity of depression. Excessive depression was not observed in any age group athlete male students (Fig 2a). In the group of non-athlete male students in the range of 20 to 22 ages had highest level of mild depression (26.8%) with score higher than 16. However, 3.3% (n=2) students with similar ages had severe depression (Fig 2b).

Table 1. *Comparison between depression levels obtained from athlete and non-athlete male and female students.*

Depression Level	Score	Athlete Male (frequency)	Non-Athlete Male (frequency)	Athlete Female (frequency)	Non-Athlete Female (frequency)
Normal	1-10	66 (73.4%)	59 (65.6%)	55 (68.7%)	46 (57.5%)
Mild	11-16	14 (15.6%)	20 (22.3%)	13 (16.2%)	22 (27.5%)
Relatively Moderate	17-20	4 (4.4%)	6 (6.6%)	5 (6.1%)	6 (7.5%)
Moderate	21-30	4 (4.4%)	3 (3.3%)	4 (5%)	4 (5%)
Severe	31-40	2 (2.2%)	2 (2.2%)	3 (3.8%)	2 (2.5%)
Excessive	41-63	0	0	0	0

Fig 1. *Comparison between depression levels obtained from a group of a) athlete and non-athlete male students and b) athlete and non- athlete female students.*

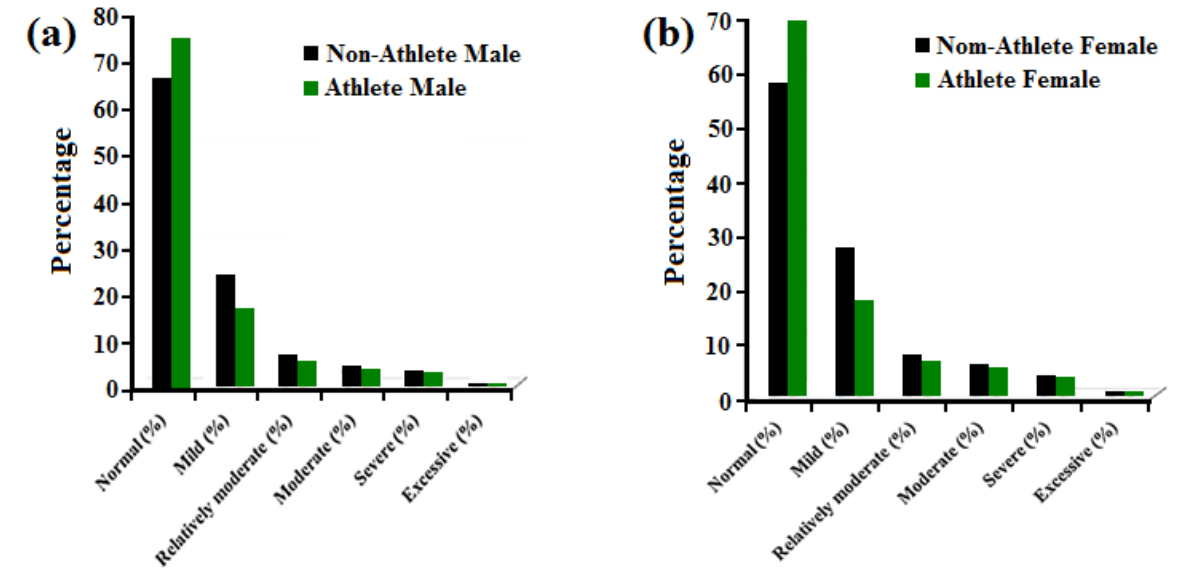
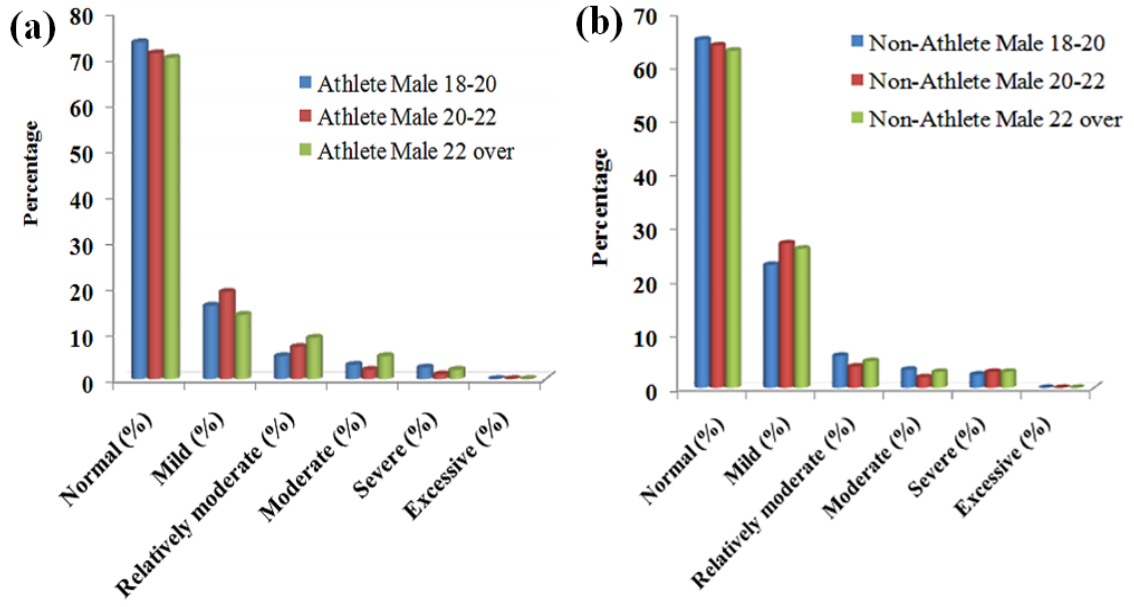


Table 2. *Prevalence of depression by severity for athlete and non- athlete male students according to their ages.*

Depression Level	Score	Athlete Male Age (18-20)	Athlete Male Age (20-20)	Athlete Male Age (22 Over)	Non-Athlete Male Age (18-20)	Non-Athlete Male Age (20-20)	Non-Athlete Male Age (22 Over)
Normal	1-10	66 (73.4%)	64 (71.1%)	63 (70.0%)	59 (65.6%)	58 (64.4%)	57 (63.3%)
Mild	11-16	14 (15.6%)	17 (18.9%)	13 (14.4%)	21 (23.4%)	24 (26.8%)	23 (25.7%)
R-Moderate	17-20	5 (5.5%)	6 (6.7%)	8 (8.9%)	5 (5.5%)	3 (3.3%)	4 (4.4%)
Moderate	21-30	3 (3.3%)	2 (2.2%)	4 (4.5%)	3 (3.3%)	2 (2.2%)	3 (3.3%)
Severe	31-40	2 (2.2%)	1 (1.1%)	2 (2.2%)	2 (2.2%)	3 (3.3%)	3 (3.3%)
Excessive	41-63	0	0	0	0	0	0

Fig 2 .*Comparing the severity of depression among a) athlete and b) non-athlete male students with different age group.*



3.3. Determination Level of Depression by Severity According to the Age of Athlete Female Students

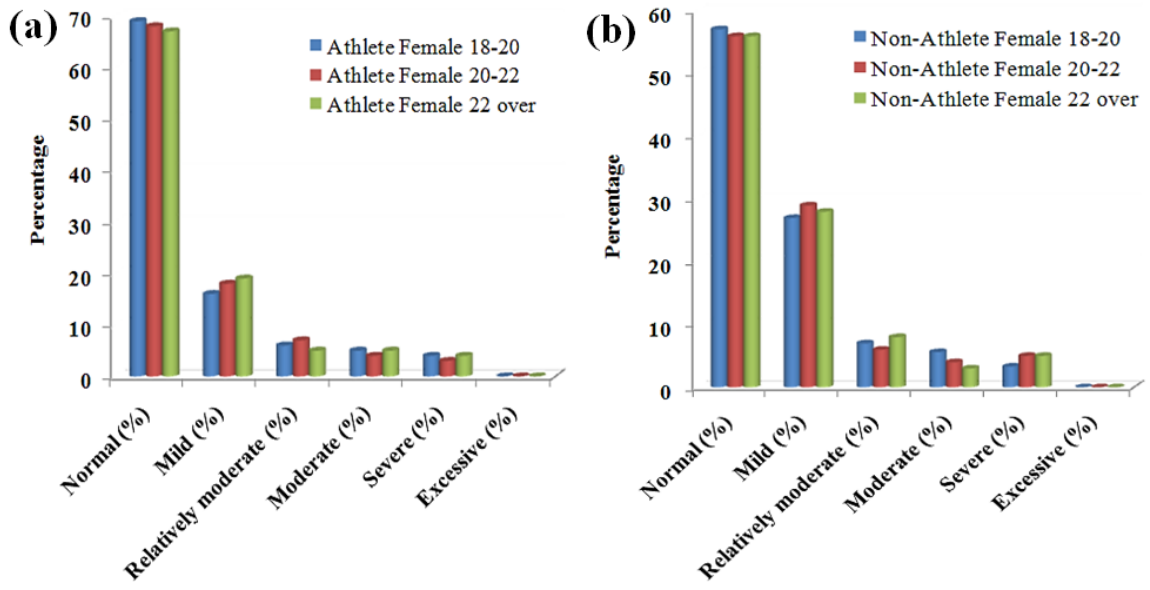
Table 3 compares the level of depression among athlete female students according their ages. It can be seen that 68.7% (n=55) of students in range of 18 to 20 age had natural depression while, 67.5% (n=54) of students between 20 to 22 age had natural depression. The corresponding value for students in age range of 22 over was similar (67.5%). About 16.3% (n=13) of the students (18-20 age) whom scored above 11, had a mild depression. However, these values were 17.6% (n=14) and 18.8% (n=15) for students with age range 20 to 22 and 22 over respectively. Around 6.3% (n=5) of students (18 to 20 age) with score more than 17 had relatively moderate depression. Compared to that 5% (n=4) of the students had moderate and 3.7% (n=3) of the students had severe depression. However, 7.4% (n=6) of the student between 20 and 22 age suffer from relatively and moderate depression. Aforementioned values increased to 8.7% (n=7) for student in age range 22 over with similar severity of depression. Excessive depression was not observed in any age group athlete male students (Fig 3a). There were 27.5% non-athlete female students in range of 18 to 20 ages suffer from mild depression compared to the 23.8% students in range of 20 over with score less than 30. There was a

less significant difference among an entire non-athlete female students in range from 18 to 22 ages who suffer from relatively moderate depression with score more than 17 (Fig 3a).

Table 3. *Prevalence of depression by severity of athlete and non-athlete female students according to their ages.*

Depression Level	Score	Athlete Female Age (18-20)	Athlete Female Age (20-20)	Athlete Female Age (22 Over)	Non-Athlete female Age (18-20)	Non-Athlete female Age (20-20)	Non-Athlete female Age (22 Over)
Normal	1-10	55 (68.7%)	54 (67.5%)	54 (67.5%)	46 (57.5%)	45 (56.2%)	45 (56.2%)
Mild	11-16	13 (16.3%)	14 (17.6%)	15 (18.8%)	22 (27.5%)	23 (23.8%)	22 (27.5%)
R-Moderate	17-20	5 (6.3%)	6 (7.5%)	4 (5%)	6 (7.5%)	5 (6.3%)	6 (7.5%)
Moderate	21-30	4 (5%)	3 (3.7%)	4 (5%)	4 (5%)	3 (3.7%)	2 (2.5%)
Severe	31-40	3 (3.7%)	3 (3.7%)	3 (3.7%)	2 (2.5%)	4 (5%)	5 (6.3%)
Excessive	41-63	0	0	0	0	0	0

Fig 3. *Comparing the severity of depression among a) athlete and b) non-athlete female students with different age groups.*



4. DISCUSSION

4.1. To Identify the Difference Level of Depression among Male and Female Non-Athlete Undergraduate Students of Private University in Esfahan

The present study showed there is a difference in the rate of depression between males and females, which is similar to the well-known idea that depression is more experienced by women in general. Moreover, depressive disorders are significantly more experienced by females than in males, with a lifetime occurrence of 14.1% for females and 8.6% for males (Coopeland, Beekman & Dewey, 1999) which is in accordance with the result of this study. Some epidemiological, community and clinical studies were indicated that females commonly were found to present higher levels of depression compared to the males. This result is in agreement with previous published work (Compass et al., 1997). Al-Busaidi

(2010) reported that the difference in the level of depression among males and females could indicate that university life has factors which might give rise to stress and induce maladjustment that conveys as depressive disorder. The other reason for greater occurrence of depression among non-athlete female students compare to the male students is the discrimination against females existing societies in most of the third world nations sometimes announced and most of the time denied, in an attempt to wear civilized manners and behaviours. Another study by Ibrahim (1989) showed that Egyptian girls in the city of Alexandria had higher depressive rates when they were compared with boys. Khalil, Rabie and Abdou (2010) research on clinical features of depression among teenage women exposed that fatigue and lack of energy (more than 80%) were the main reason of depression. Pessimism, sadness and low self-esteem were also indicated (about 3/4 of the sample) and were mentioned as another reason of depression. Insomnia was reported (45%) commoner than hypersomnia (33.8%). Excess bodyweight and losing bodyweight were reported as another factor for depression. In the present study was also revealed that 34.5% of non-athlete male students presented depressive symptoms. This can be attributed to the students who join the university and leave their homes for the first time, besides, most of them stay in dormitory. This might subject them to loss of the conventional support and guidance in addition to living with other students and fellow relationships. Moreover, there is a change in the style of learning from what the students are used to in school. These changes may act as risk factors to depression among non-athlete male university students. For example, (Bland, 1997) evaluation of data associated to 11 countries revealed a common lifetime prevalence ratio for depressive disorder as 1.5:1 for female-to-male comparisons. In this regard, data from the Global Burden of Disease indicated that depressive disorders ranked as the fourth major cause of disease burden for female; however, only the seventh one for male (Ustun, Ayuso-Mateos, Chatterji, Mathers & Murray 2004). Hawthorne, Goldney and Taylor (2008) reported that depressive disorder among Australian females aged 15–29 years was 10% in 1998 and this value increased to 14% after five years later; however, only 3% and 2% of males with similar age suffer from depression compared to the females. With this regard other study showed the prevalence of depression among females 5% more than that of males. Similarly, it was found that there was a robust gender difference in the levels of depressive with girls more affected than boys (Galambos, Leadbeater & Barker, 2004), thus, their findings confirm our results. With certain reference to students of the university, a latest common study of the 939 students from a Midwestern university showed that 18% of females and 9% of males revealed being depressed (Soet & Sevig, 2006). This indicates that women have more pain, exhaustion, getting to sleep, and digestive problems compared to the males. In addition, female students might suffer more from instances of fast heartbeat and insomnia as well as a pattern toward more mental confusion, and pessimism about the future compared to the male students (Bitsika, Sharpley & Melhem, 2010). That is, questions about the reasons why women find themselves exhausted, digestively disappointed, and psychologically labile could help therapists open the women client to further self-reflection upon the possibly high amount of energy that she is applying to balance the stressors she deal in university study. Avison and McAlpine (1992) revealed that the advanced level of depressive disorders in female students was described by greater degree of stress. This could recommend an additional gender difference with regard to dealing with stress and its effect on depression, which was not analysed previously. This research verified the results of studies (Apfel, 2004; Wardle, Steptoe, Gulis & Sartory 2004) which mentioned that depression was more strongly associated with females. In line, Armstrong & Oomen-Early (2009) found that female college students had higher levels of depression than did a male college student which is supported by this study. In this regards, Le, Munoz, Ippen and Stoddard (2003) illustrated that female are twice more likely to be diagnosed and treated for major depression than are male.

The present study also exposed that the prevalence of depression and depressive symptoms according to age of non-athlete female and non-athlete male students were not significantly different among the age groups. This result is inconsistent with the results of Weissman and Klerman (1985), who suggested that the prevalence of depression and depressive symptoms increases with age. However, this result is consistent with the results of Hisli (1989), who suggests that there is not any difference between point averages of depression for students in accordance with age variables. Stordal et al. (2001) found a strong association between the prevalence of symptoms of depression and age among older Europeans. The socio-demographic characteristics such as marital status, educational level, limitations in activities of daily living and the health conditions of

older persons were reported (Buber & Engelhardt, 2008) as the main factors for determinants of depression level. Okyay, Atasoylu, Onde, Dereboy and Beşer (2012) determines that although the depression rate of females at age 15 to 18 in Turkey are less significant than male students, but there is no significant difference between the rate of depression for females and males according their age. This result is inconsistent with present results which showed that female student suffer more from depression than male students.

4.2. To Identify the Effect of Physical Activities on Level of Depression among Male and Female Undergraduate Students of Private University in Esfahan

The results of this study showed there is a negative relationship between physical activity and depression of female and male undergraduate students. Several possible mechanisms of how exercising influence depression has been proposed. Exercising may have physiological effects on depression in order to an increased release of β-endorphins, brain neurotransmitters such as serotonin and dopamine (Craft, Freund & Perna, 2007). Another possible explanation is that physical activity decreases psychological stress and acts as an obstacle against traumatic events. Next, participation in regular exercising programs may express a sense of expertise and improved self-esteem. Participation in the gym or exercise groups can also provide public connections and enhance participants' public skills. Furthermore, students participated in after-class exercising in the natural or 'green' environments, commonly recreational areas, open areas, and playgrounds, which would benefit their mental health (Cohen, 2004). Other studied (Ammouri, Kaur, Neuberger, Gajewski, Choi, 2007; Dishman et al., 2006) also identified inverse relationships between physical activity, including sports participation, and depressive symptoms among adolescents which has good agreement with the present study. In contrast Brooks, Harris, Thrall and Woods (2002) found no association between physical activity and depressive symptoms. This can be attributed limitations associated with using a single item to measure depressive symptoms (Johnson, Kubik & McMorris, 2011). Nevertheless, the majority of research reported small-to-moderate protective effects of physical activity or sports team participation. The result of this study has a good agreement with a published work by Jerstad et al. (2010) which indicated that physical activity decreased the risk of developing depressive symptoms by 18%, and depression reduced the likelihood of participating in physical activity by 35%. Other study by Ammouri et al. (2007) also reported similar result which indicated the inverse relationship among a sample of mostly Black females. The result of this work is consistent with the findings of Patten, Choi, Vickers and Pierce (2001) which showed adolescents who participated in sports were less likely to report persistent depressive symptoms. This is due to physical activity serves as a protective factor against depression among middle and older adolescents (Johnson & Taliaferro, 2011). In this regard Paffenbarger et al. (1994) also showed that physical activity negatively correlated with depression among 10,201 men around 25 years. In line, Strohle (2009) reported that the absence of exercise habits was linked to later depression across two 9-year periods in a sample of 4,848 subjects. Based on confirmed results, physical activity can effect on the neurological system resulted in the head while happy individuals. On the other hand, exercise can enhance the assurance and benefit of the primary students (Gargari, Jorkesh, Dehghanpor & Asadollahi, 2012). Being active is good for modifying individual feelings and altitudes. Moreover, excise improving individual self-confidence to feel and think success and turn individual mind to last success. Thus, it results in thinking positively in any decision he or she makes (Bagherpour & Shojaei, 2010). Students in exercising may provide social connectedness, effectiveness, and entertainment, resulting in lower risk of depressive disorders beginning. In this regard, depressive disorders reduce the probability of later participation in exercising (Jerstad et al., 2010). Proper exercising can help body to provide better nerving system and give self-confidence, making right choice at the critical moments in life. Depression and mental tension are not just related to brain function, but it also affect to man's body (Beck & Greenberg, 1974). Body exercise also leads to better regulating blood pressure. So nerve system can operate and react promptly on order. This phenomenon caused control the mental acts and reduces the emotional pressure resulted in strong body fit and enhance self-confidence of the students. Regular performing any type of sports on firm schedule can prepare students to fight against loneliness and partial depression and having stronger body means less depression chance (Beck & Greenberg, 1974). Everyday Exercising which leads to seat and increasing heart beat can reduce anxiety and depression and also increasing the production of endorphin, donprophies, and vonkelophine since they are natural reducer and comfortable (Paluska & Schwenk, 2000). In this regard Talebzadeh (2014)

found that physical activity has positive effect on the behaviour and mood, as well as, physical exercises are associated with reduced stress, tension and depression and increased self-confidence.

5. CONCLUSIONS

The incident of depressive symptoms is a well-known social and clinical issue. Depression symptoms reduce the well-being of life and can result in people to have a dim view of their upcoming, due to adverse views of self, reality, and future in general. Non-athlete student had greater levels of depression compared to the athlete students. The analyses also indicated that the relationship between physical activity and depressed level was varied by gender. In this regard, the depressive disorders are significantly more experienced by female students than in male undergraduate students. However no association was observed between depression rate and age of undergraduate students. Further research is required into the mechanisms connecting exercising and depression symptoms to promote physical activity among female and male students as a way to prevent or treating depression.

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APPENDIX

In Appendix 1, shows the t-value, degree of freedom (df) and significance level (p) of male and female athlete's students. It can be seen that the t-value and df were -0.56 and 168.04 respectively for male athlete's students. Furthermore, the t-value and df were -0.56 and 163.01 respectively for female athlete's students. With regard to if the p-value is below 0.05, it can be assumed that the value is significant. Considering the P-value were -0.57 and -0.57 for male and female athlete's students respectively by using the t-test for independent samples it can be concluded that there was no significant relationship between male and female athlete's students.

Appendix 1. *Distribution of indices of depression level among male and female athlete students.*

		Levene's Test for Equality of Variances		T-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Depression	Equal variances assumed	0.537	0.465	-0.562	168	0.575	-0.083	0.148	-0.376	0.209
	Equal variances not assumed			-0.561	163.064	0.576	-0.083	0.149	-0.377	0.210

In Appendix 2, shows the t-value, degree of freedom (df) and significance level (p) of male and female non-athlete's students. It can be seen that the t-value and df were -0.562 and 168.04 respectively for male non-athlete's students. Furthermore, the t-value and df were -0.56 and 163.01 respectively for female non-athlete's students. With regard to if the p-value is below 0.05, it can be assumed that the value is significant. Considering the P-value were -0.57 and -0.57 for male and female non-athlete's students respectively by using the t-test for independent samples it can be concluded that there was no significant relationship between male and female non-athlete's students.

Appendix 2. *Distribution of indices of depression level among male and female non-athlete students.*

		Levene's Test for Equality of Variances		T-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Depression	Equal variances assumed	0.284	0.595	-0.813	168	0.418	-0.118	0.145	-0.405	0.169
	Equal variances not assumed			-0.810	163	0.419	-0.118	0.146	-0.406	0.170

Appendix 3 shows distribution of indices of depression level among athlete and non-athlete male students. It can be seen that t-value was -0.56, df was 178 and the significance level was 0.57. Using the t-test for independent samples, there is no significant difference between two groups (t = -0.56, df = 178, p=0.57 >0.05)'.

Appendix 3. *Distribution of indices of depression level among athlete and non-athlete male student.*

		Levene's Test for Equality of Variances		T-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Depression	Equal variances assumed	0.104	0.748	-.560	178	0.576	-0.078	0.139	-0.352	0.196
	Equal variances not assumed			-.560	179	0.579	-0.079	0.141	-0.353	0.198

Appendix 4 exhibited distribution of indices of depression level among athlete and non-athlete female students. As can be seen t-value was -0.72, df was 158 and significance level was 0.46. By using the t-test for independent samples, there was no significant difference between two groups (p=0.46 >0.05)'.

Appendix 4. *Distribution of indices of depression level among athlete and non-athlete female students.*

		Levene's Test for Equality of Variances		T-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Depression	Equal variances assumed	0.003	0.954	-0.726	158	0.469	-0.113	0.155	-0.418	0.193
	Equal variances not assumed			-0.726	157.895	0.469	-0.113	0.155	-0.418	0.193

In Appendix 5 can be seen that the F value was 0.58 and significant value was 0.55. The p-value was significant if it was below 0.05. Therefore, using the ANOVA for comparing athlete males depression level regarding their age, there is no significant difference between three age groups (F = 0.58, dfbetween = 2, dfwithin=87, p=0.55 >0.05).

Appendix 5. *Statically of athlete male students.*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.041	2	0.520	0.585	0.559
Within Groups	77.359	87	0.889		
Total	78.400	89			