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Cross-cultural Examination of Differences Regarding Eating Attitudes and Depression of International University Students

Sultan Okumusoglu*

European University of Lefke, CYPRUS

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Abstract: Globally increasing prevalence of eating disorders emphasizes the existence of eating psychopathologies across cultures. Investigating eating disorders and depression among emerging adults across ethnic/racial diversity is important regarding the etiology and interventions. Hence, examination of differences regarding eating attitudes and depression of international university students from Africa and Asia continents was aimed. "Eating Attitudes Test-26" (EAT-26) and "The Center for Epidemiologic Studies Depression Scale-Revised" (CESD-R) were used for data collection. Participants are 108 (84 Africans, 24 Asians) university students. Asian students' and females' EAT-26 scores were determined as higher. Regarding depression scores, 14,81% of the all participants (8,3% of the African and 37,5% of the Asian students) were found above the pathological cut point. But no differences were detected between groups except 'suicide ideas'. Disordered eating attitudes correlated positively with depressive tendencies and also with 'sadness', 'tiredness' and 'suicide ideas' besides compensating behaviors like 'laxative diuretic usage'. Results demonstrated some practical and theoretical implications. As well as being consistent with cross-cultural findings regarding eating disorders, results seem consistent with the criteria and the related literature revealing co-existing symptoms of eating disorders, comorbidity between eating disorders and depression and also with Cognitive Theory.

Keywords: *Eating disorders, depression, African university students, Asian university students.*

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Introduction

Eating disorders have an increasing prevalence among adolescents and young adults and have a noteworthy impact on sufferers' life quality. Eating disorders like Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Binge Eating Disorder (BED) are serious psychopathologies. Eating disorders -depending on the type of the disorder- might include disordered eating behavior like "eating too much" (BED) or "starving" (AN) or having "binge eating attacks" that followed by various compensatory behaviors (as "vomiting", "having laxatives-diuretics") (BN). Changes in body and self-image, "obsessive preoccupation with body weight and shape" and "pathological fear of gaining weight" despite of the fact that having an extremely thin even cachectic body are some of the other characteristics of eating disorders (American Psychological Association [APA], 2013).

It has been claimed that eating disorder sufferers experience a feedback loop in which cognitive biases regarding ambiguous body related information activates negative emotions, besides shape/size related schemas or eating related schemas and all these in turn activates cognitive biases like a "vicious cycle". This "vicious cycle" leads to a negative affective condition which activates negative emotions. People tend to attach negative labels to these emotions as feelings of fatness, body dissatisfaction, depression. Reactions to escape from these negative feelings create an urge to do something to undo this miserable affective state. This urge probably leads to engagement in disordered eating behaviors as food restriction, binge eating, and compensating behaviors (Williamson, Muller, Reas, & Thaw, 1999; Williamson, Perrin, Blouin, & Barbin, 2000).

Eating disorders were generally explained by desire to fit with "Western body ideals" which implies effects of sociocultural factors in development of these psychopathologies (Gordon, Perez, & Joiner, 2002; Nasser, Katzman, & Gordon, 2001; Tsai, Curbow, & Heinberg, 2003). Some investigators claim that there is a "stereotypical patient

* Correspondence:

Sultan Okumusoglu, European University of Lefke, Faculty of Arts & Sciences, Psychology Department, Lefke, Northern Cyprus, TR-10 Mersin, Turkey
E-Mail: ssehitoglu@eul.edu.tr

typology” about eating disorder patients especially about AN patient. According to these mentioned stereotypical myths AN patients are typically “young”, “well-educated” and “North European Caucasian females” from the “higher socio-economic level” (Rieger, Touyz, Swain, & Beumont, 2001; Weiss, 1995). However nowadays it is widely accepted that concerns related with eating and therefore with eating disorders are exist across almost all racial and ethnic groups (Franko, Becker, Thomas, & Herzog, 2007; Ruiz, Pepper, & Wilfley, 2004).

According to some studies ethnicity plays a significant role especially in subclinical disturbances of eating. For example, students with Asian background have informed as having more unhealthy eating attitudes than North-European students (McCourt & Waller, 1995; Mumford & Whitehouse, 1988). Another study revealed that levels of restrained eating among Asian female university students who were getting education at United States of America was found lower than their “local counterparts” (Tsai, Hoer, & Song, 1998). Some other studies informed that AN is uncommon among African Americans (Taylor, Caldwell, Baser, Faison, & Jackson, 2007; Hudson, Hiripi, Pope & Kessler, 2007). It is also informed that due to younger age of onset African Americans may be more at risk in terms of eating disorder development than Caribbean Black adults (Striegel-Moore et al., 2003). Other studies claim that ethnicity does not play any important and significant role in terms of eating disorder disturbances like BN (Wildes, Emery, & Simons, 2001). Regarding results of another study (Striegel-Moore, Wilfley, Pike, Dohm, & Fairburn, 2000) BED develops with equal frequency for African-American and white women. Existence of myriad of contradictory findings points out the necessity for further studies.

It has been pointed out that despite the fact that obesity is not stigmatized in African American culture; African American young females are developing eating disorders due to acculturation, due to effects of European American ideals of thinness and body dissatisfaction (Talleyrand, 2010). On the other hand, beside higher rates of obesity (Talleyrand, 2010) African Americans’ risk for binge eating also informed as higher than Caribbean Americans (Vander Wall, 2004).

Eating Disorders have an increasing prevalence globally which also points out the existence of eating psychopathologies across cultures. It is known that risks for eating disorders may vary due to various factors such as cultural, social and economic factors (Rubin, Gluck, Knoll, Lorence, & Geliebter, 2008) which means culturally relevant psychotherapies might be needed while there are only a few (Lester, 2007). It is also known that risks for eating disorders may vary due to psychological factors. Cognitive Theory suggests that individuals’ cognitions are important regarding the development and maintenance of psychopathologies (Beck, 1967; Dozois & Beck, 2008; Beck, Emery, & Greenberg, 1985). Kuijer and Boyce (2014) claims that eating activity and food are related with conflictive feelings as pleasure and satisfaction on one hand and feelings of concern and guilt on the other hand. A relation between having depression and having an eating disorder (Çelik, Yoldaşcan, Okyay, & Özenli, 2016) and having depressive tendencies and having unsuccessful results in terms of weight loss in obesity was also declared in related literature (Okumuşoğlu, 2017a; Okumuşoğlu & Arkar, 2017). It was emphasized in literature that depression is a psychopathology that should be investigated especially among university students who studies overseas (Okumuşoğlu, 2017b). Like eating disorders, depression is another worldwide psychopathology (World Health Organization [WHO], 2013) that is cross-culturally exist (Kessler & Bromet, 2013). Beside, depression is a psychopathology that is associated with the epidemiology of eating disorders (De Franca, Gigante, & Olinto, 2014; Reagan, & Hersch, 2005).

Probability of eating disorder development is informed as higher among university students than rest of the society (Jarryl, 1998; McDermott & Jaffa, 2005). Köknel (1981) points out the importance of sociocultural changes and cultural conflicts affecting youth (Köknel, 1981) and increasing prevalence of eating disorders in youth is associated with sociocultural factors in various studies (e.g. Benton, & Karazsia, 2015; Rodgers, 2016). On the other hand, in terms of good treatment outcomes, it is informed that the individuals who could get early assessment and treatment have better chances than people who lived with the illness for a long period of time (NEDC, 2016:12). Hence investigation of eating disorders and some related factors among university students seems important regarding intervention plans targeting eating disorders and co-existing problems.

Research about eating attitudes have implications in terms of practical applications and models both related with this difficult area of psychopathology which is related with many affecting factors such as diversity of symptoms in different people (Alvarenga, Scagliusi, & Philippi, 2008). Research about eating attitudes and its relationship with depression with African and Asian English speaking students might be helpful to critically approach to some claims regarding eating disorders like suggested etiologies as underlying desire to fit with “*Western body ideals*”, like existence of stereotypical eating disorder patient, like role of ethnicity and effects of culture. Due to all these facts it can be said that investigating eating disorders among university students across ethnic/racial diversity is important in terms of both practical and theoretical reasons.

Under the light of the related literature, the aim of the present study is cross-cultural examination of differences regarding eating attitudes among English speaking international students from two different continents that are Africa and Asia.

Examination of cross-cultural differences regarding depression was also aimed. Investigation of the relationship between depression and eating disorders in the mentioned sample was also aimed.

Another aim of the presented study was to examine the differences of eating disorders and depression levels of students regarding their gender, and psychopathological cut point groups of EAT-26.

Methodology

The current investigation has a descriptive, cross sectional study design (Yates, Moore, & Starnes, 2003). Before data collection institutional permission from the university in which students are having education has been granted. Then students were reached during common compulsory courses for English speaking international students with the permission of professors of the mentioned courses.

Regarding the ethical principles, besides written informed consent explanation which was given together with the scales, study's aim was explained by the researcher to prospective participants and anonymity was guaranteed. Sitting plans arranged accordingly to provide maximum possible privacy regarding answers. Also permission to ask whatever they need regarding scales and researcher's communication information were given. After informed consent was taken, scales were completed by the students who volunteered. Data collection was conducted during Spring Semester of 2016-2017 education year at a university in North Cyprus. After completion of data collection participants were informed about guidance possibilities of institution for any student who needs any kind of psychological support, and permission to ask whatever they need regarding scales and researcher's communication information were announced again.

Participants

137 university students who are attending mentioned courses and who volunteered to participate, answered the scales. Due to existence of many unanswered items 29 participants were excluded. Hence, the participants of the present study are 108 English speaking international students (41 males and 67 female) of a university in North Cyprus. According to participants' self-reports depending on birth continent 84 African and 24 Asian students participated to the study. The age range is 17-35 (\bar{X} =21.30, SD =3.31). Mean body mass index (BMI) was calculated as $24,4\text{kg/m}^2$ (SD =4,81), ($BMI = \text{weight}/\text{height}^2$).

Instruments of data collection

Demographics Scale

Participants' age, sex, birth continent (African-Asian), weight and height have been handled through this scale.

Eating Attitudes Test-26 (EAT-26):

Eating Attitudes Test was developed as a 40 item test at first (Garner & Garfinkel, 1979) then test was shortened to 26 items by developers. Scale was developed to measure eating disorder tendencies. It is a 6th likert type scale which scored as follows: Always 3; Usually 2; Often 1; Other answers 0. Item 26 requires reverse coding. The informed Cronbach's Alpha for the scale is .79 for the group with anorexia nervosa and .96 for the total participants of the original study. Cut point for psychopathology was determined as ≥ 20 . Which means scores higher than 20 were accepted as indication of possible psychopathology regarding eating disorders. Test was reproduced and used with permission from developers of the scale (Garner & Garfinkel, 1979). Cronbach's Alpha of EAT-26 for the presented study was calculated as 0,78.

The Center for Epidemiologic Studies Depression Scale-Revised (CESD-R)

CESD was created by Radloff (1977) and was revised by Eaton and others as CESD-R (Eaton, Muntaner, Smith, Tien, & Ybarra, 2004). CESD-R is a 20 item test which measure symptoms of depression in nine different sub groups. These groups are named as Sadness (Dysphoria), Loss of Interest (anhedonia), Appetite, Sleep, Thinking/concentration, Guilt (worthlessness), Tired (fatigue), Movement (agitation) and Suicidal ideation (Eaton et al., 2004). Cronbach's Alpha for scale was informed as .92. (Van Dam, & Earleywine, 2011). CESD-R is known as a widely used measurement scale for depression in which higher scores points out higher depressive tendencies (Murphy, 2002). Since CESD-R is announced as freely available at <http://cesd-r.com> address extra permission from developers was not required. Cronbach's Alpha of CESD-R for the presented study was calculated as 0,86.

Data Analysis

Collected data was entered to SPSS file and analysis conducted by using SPSS 16. Statistical significance level was accepted as $p < .05$. The relations among variables were examined through correlation analysis. To investigate predictors of eating attitudes stepwise regression analysis were used. Independent samples t-tests were performed to see differences between African and Asian university students in terms of eating attitudes and depressive tendencies. Independent samples t-tests were also used to examine differences among males and females and also to see differences between the groups constructed according to psychopathological cut point of EAT-26. Also descriptive statistics to handle descriptive information about participants were used.

Results

The relations among variables were investigated through Pearson correlation analysis (see Table 1). Eating attitude scores of participants were found correlated positively with “exercising more than 60 minutes per day to lose weight” ($r=.27, p<.05$), with compensating behaviors as use of “laxatives” or “diuretics”, ($r=.32, p<.05$), with “lost at least 20 pounds in the past 6 months” ($r=.33, p<.05$), and with “being treated for an eating disorder” ($r=.19, p<.05$).

Eating attitudes of participants also correlated positively with total CESD-R total scores ($r=.20, p<.05$), also with subscales as “sadness” ($r=.25, p<.05$), “tiredness” ($r=.22, p<.05$), and “suicide tendencies” ($r=.26, p<.05$). Which means disordered eating attitudes tended to rise or fall down together with “total depressive tendencies”, “sadness”, “tiredness” and “suicide tendencies”.

Binge eating episodes correlated positively with “vomiting” ($r=.19, p<.05$) and “laxative diuretic usage” ($r=.32, p<.05$). Which means “binge eating” tended to rise together with “vomiting” and “laxative diuretic usage”.

“Vomiting” and “laxative diuretic usage” was found correlated positively with each other ($r=.51, p<.05$) and “tiredness” ($r=.21, p<.05$).

“Laxative diuretic usage” correlated positively with “total depression score” ($r=.26, p<.05$), “sadness” ($r=.29, p<.05$), “loss of appetite” ($r=.19, p<.05$), “disordered sleep” ($r=.25, p<.05$), “guilt” ($r=.23, p<.05$) and “suicidal ideas” ($r=.27, p<.05$). Also “laxative diuretic usage” correlated positively with “exercising more than 60 minutes per day to lose weight” ($r=.28, p<.05$).

Besides reporting “loss of at least 20 pounds” and “being treated for an eating disorder” correlated positively ($r=.56, p<.05$). CESD-R total scores were found positively correlated with EAT total scores ($r=.20, p<.05$) and “laxative-diuretic usage” ($r=.26, p<.05$).

“Sadness” was found positively correlated with EAT total scores ($r=.25, p<.05$) and “laxative-diuretic usage” ($r=.29, p<.05$).

“Suicidal ideas” were found positively correlated with EAT total scores ($r=.26, p<.05$), “laxative-diuretic usage” ($r=.27, p<.05$), “loss of at least 20 pounds in past six months” ($r=.20, p<.05$), and with total CESD-R scores ($r=.58, p<.05$). As can be expected and as can be seen from the Table 1., the total scores of CESD-R scale were found correlated with all sub factors of the mentioned scale.

Table 1. Correlations among variables

Variables	EAT	Exercise	Binge	Vom	LaxDiu	LostTP	TreatED	CESDTot	Sadness	Anh	Appt	Slp	Think	Guilt	Tired	Agitation	Suicide
EAT	1																
Exercise	.27**	1															
Binge	.16	.16	1														
Vom	.19	.02	.19*	1													
LaxDiu	.32**	.28**	.32**	.51**	1												
LostTP	.33**	.02	.09	.07	.03	1											
TreatED	.19*	.10	.02	.03	.03	.56**	1										
CESDTot	.20*	.09	.11	.13	.26**	.12	.10	1									
Sadness	.25**	.17	.07	.04	.29**	.12	.04	.79**	1								
Anh	.02	.13	.17	.03	.11	.10	.03	.64**	.54**	1							
Appt	.08	.05	.01	.04	.19*	.04	.18	.65**	.46**	.26**	1						
Slp	.15	.03	.10	.12	.25**	.12	.16	.76**	.49**	.31**	.50**	1					
Think	.05	.09	.15	.01	.08	.07	.03	.76**	.56**	.34**	.49**	.55**	1				
Guilt	.06	.04	.00	.16	.23*	.03	.00	.56**	.35**	.30**	.29**	.28**	.31**	1			
Tired	.22*	.05	.02	.21*	.18	.18	.18	.81**	.58**	.44**	.58**	.64**	.65**	.34**	1		
Agitation	.14	.04	.06	.06	.04	.01	.07	.61**	.32**	.31**	.26**	.41**	.54**	.30**	.43**	1	
Suicide	.26**	.06	.02	.25	.27**	.20*	.05	.58**	.47**	.27**	.37**	.31**	.26**	.53**	.37**	.23**	1

* $p<.05$ ** $p<.01$ Abbreviations= EAT: Eating Attitudes Test, Vom: Vomit, LaxDiu: Laxative-Diuretic, LostTP: Lost Twenty Pounds, TreatED: Treated for Eating Disorder, CESDTot: Center for Epidemiologic Studies Depression Scale Total Score, Anh: Anhedonia, Appt: Appetite, Slp: Sleep, Think: Thinking.

To investigate predictors of eating attitudes among English speaking university students’ stepwise regression analysis have been conducted. As can be seen from the Table 2. %11 of the variance of eating attitudes was explained by “losing at least 20 pounds in previous six months”. When compensating behaviors as usage of “laxatives and diuretics” entered the equation %21 of the variance of eating attitudes was explained by mentioned two variables. When “exercising more than 60 minutes per day” entered the equation %24 of the variance of eating attitudes was explained.

Table 2. Predictors of eating attitudes according to stepwise regression analysis

Predictors	R	R ²	B	Beta	Std Error	F	p
LostTP	.33	.11	9.92	.33	2.77	12.78*	.001
LaxDiu	.46	.21	8.45	.32	2.26	14.16*	.000
Exercise	.49	.24	5.78	.18	2.82	11.13*	.000

Abbreviations=LostTP: Lost at least twenty pounds in previous 6 months, LaxDiu: Laxative-diuretic usage

As can be seen from the Table 3. significant differences were found between African and Asian students regarding EAT-26 total scores. Asian students differed with significantly higher mean scores from African students.

Asian students also differed with higher means from African students regarding “being treated for eating disorder” and “losing at least 20 pounds in previous 6 months”, “laxative diuretic usage”, “vomiting” and “suicidal ideas”.

No differences have been found between African and Asian university students in terms of “exercising to lose or control weight”, “having binge eating episodes”, “depression total scores” and subscales of depression except “suicidal ideation”.

Table 3. Results of independent samples t-tests about differences between African and Asian university students

	Group	\bar{X}	SD	t	p
EATTotal	African	10,42	7,93	-2,419*	,017
	Asian	15,25	10,69		
Exercise	African	1,09	,29	1,017	,314
	Asian	1,04	,20		
binge	African	1,22	,42	,185	,854
	Asian	1,20	,41		
vomit	African	1,08	,27	-2,748*	,007
	Asian	1,29	,46		
LaxDiur	African	1,08	,27	-2,748*	,007
	Asian	1,29	,46		
LostTwentyP	African	1,03	,18	-4,063*	,000
	Asian	1,29	,46		
TreatedED	African	1,04	,21	-3,123*	,002
	Asian	1,25	,44		
CESDtot	African	23,12	15,60	-1,142	,260
	Asian	26,99	14,36		
sadness	African	3,63	2,84	-1,359	,184
	Asian	4,70	3,55		
anhedonia	African	2,72	3,32	,252	,802
	Asian	2,56	2,63		
appetite	African	1,80	1,83	-,638	,527
	Asian	2,07	1,83		
sleep	African	3,86	3,45	-1,229	,228
	Asian	5,01	4,18		
thinking	African	3,50	2,57	,619	,539
	Asian	3,20	1,92		
guilt	African	1,52	1,91	-1,336	,189
	Asian	2,09	1,82		
tired	African	2,43	1,93	-,997	,325
	Asian	2,88	1,95		
Agitation	African	2,62	2,55	,589	,557
	Asian	2,29	1,53		
Suicide	African	1,00	1,66		

	Group	\bar{X}	SD	t	p
EATTotal	African	10,42	7,93	-2,419*	,017
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Exercise	African	1,09	,29	1,017	,314
	Asian	1,04	,20		
binge	African	1,22	,42	,185	,854
	Asian	1,20	,41		
vomit	African	1,08	,27	-2,748*	,007
	Asian	1,29	,46		
LaxDiur	African	1,08	,27	-2,748*	,007
	Asian	1,29	,46		
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CESDtot	African	23,12	15,60	-1,142	,260
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	Asian	2,56	2,63		
appetite	African	1,80	1,83	-,638	,527
	Asian	2,07	1,83		
sleep	African	3,86	3,45	-1,229	,228
	Asian	5,01	4,18		
thinking	African	3,50	2,57	,619	,539
	Asian	3,20	1,92		
guilt	African	1,52	1,91	-1,336	,189
	Asian	2,09	1,82		
tired	African	2,43	1,93	-,997	,325
	Asian	2,88	1,95		
Agitation	African	2,62	2,55	,589	,557
	Asian	2,29	1,53		
Suicide	African	1,00	1,66	-2,498*	,018
	Asian	2,15	2,05		

* $p < .05$, African ($n=84$), Asian ($n=24$), Abbreviations= EATTotal: Eating attitudes test total scores, LaxDiu: Laxative-diuretic, LostTwentyP: Lost at least twenty pounds in previous 6 months, TreatedED: Treated for eating disorder, CESDtot: Center for epidemiologic studies depression scale total score.

Independent samples t-tests have been conducted to see differences between males and females. Statistical analysis revealed that male and female university students differed significantly in terms of total eating attitudes scale scores and “guilt” factor of CESD-R scale. As can be seen from the Table 4, female students differed with higher means regarding total eating attitudes scale scores and with lower means than male students in terms of “guilt”. The rest of the t-tests revealed no statistically significant difference between males and females.

Table 4. Results of independent samples t-tests about differences between male and female university students

	Gender	\bar{X}	SD	t	p
EATTotal	male	9,24	6,21	-2,117*	,037
	female	12,88	9,85		
Exercise	male	1,07	,26	-,303	,763
	female	1,08	,28		
binge	male	1,24	,43	,414	,680
	female	1,20	,40		
vomit	male	1,04	,21	-1,974	,051
	female	1,17	,38		
LaxDiur	male	1,09	,30	-,805	,423
	female	1,14	,35		
losttwentyP	male	1,02	,15	-1,928	,057
	female	1,13	,34		
treatedforED	male	1,07	,26	-,561	,576
	female	1,10	,30		
CESDtot	male	27,10	16,46	1,611	,111
	female	22,07	14,43		
sadness	male	4,31	2,88	1,224	,224
	female	3,59	3,11		
anhedonia	male	3,32	3,93	1,486	,142
	female	2,30	2,55		
appetite	male	2,11	1,81	1,117	,267
	female	1,71	1,84		
sleep	male	4,49	4,09	,826	,411
	female	3,89	3,35		
thinking	male	3,91	2,72	1,514	,134
	female	3,15	2,21		
guilt	male	2,21	2,26	2,237*	,029
	female	1,31	1,56		
tired	male	2,79	2,05	1,083	,282
	female	2,36	1,86		
agitation	male	2,62	2,26	,262	,792
	female	2,50	2,44		
suicide	male	1,30	1,60	,181	,857
	female	1,23	1,94		

* $p < .05$, male (n=41), female (n=67), Abbreviations= EATTotal: Eating Attitudes Test total scores, LaxDiu: Laxative-Diuretic, LostTwentyP: Lost Twenty Pounds in previous 6 months, TreatedforED: Treated for Eating Disorder, CESDtot: Center for Epidemiologic Studies Depression Scale Total Score.

Independent samples t-tests have been conducted to see differences between the groups which were formed regarding psychopathological cut point of EAT-26 (≥ 20). Participants with mean scores above the psychopathological cut point of EAT-26 differed significantly in terms of "laxative diuretic usage", "loosing at least 20 pounds", "being treated for an eating disorder". This group also differed with higher total depression scores and "sadness" subscale scores.

Table 5. Results of independent samples t-tests about differences between groups regarding psychopathological cut point of EAT-26

	EAT Groups	\bar{X}	SD	t	p
Exercise	1	1,07	,26	-,545	,59
	2	1,12	,34		
binge	1	1,20	,40	-,835	,41
	2	1,31	,47		
vomit	1	1,10	,31	1,556	,12
	2	1,25	,44		
LaxDiur	1	1,08	,28	-3,293*	,001
	2	1,37	,50		
losttwentyP	1	1,05	,22	3,434*	,001
	2	1,31	,47		
treatedforED	1	1,06	,24	2,394*	,01
	2	1,25	,44		
CESDtot	1	22,64	14,91	-2,109 *	,04
	2	31,71	16,04		
Sadness	1	3,56	2,83	-2,149*	,04
	2	5,61	3,63		
anhedonia	1	2,57	3,24	-1,017	,32
	2	3,34	2,70		
Appetite	1	1,76	1,73	-1,092	,28
	2	2,43	2,31		
Sleep	1	3,83	3,41	-1,637	,11
	2	5,77	4,51		
Thinking	1	3,41	2,49	-,314	,75
	2	3,59	2,13		
guilt	1	1,53	1,84	-1,388	,18
	2	2,32	2,14		
Tired	1	2,33	1,88	-2,465*	,02
	2	3,63	1,94		
agitation	1	2,49	2,45	-,745	,46
	2	2,88	1,84		
suicide	1	1,11	1,71	-1,713	,10
	2	2,10	2,18		

*p<.05 EAT-26 cut point groups 1: ≤ 19 (n=92) and 2: ≥ 20 (n=16), Abbreviations=LaxDiu: Laxative-Diuretic, Lost TwentyP: Lost Twenty Pounds in previous 6 months, TreatedforED: Treated for Eating Disorder, CESDtot: Center for Epidemiologic Studies Depression Scale Total Score.

As can be seen (see Table 6) the descriptive analysis conducted in terms of pathological cut point of the EAT-26 (≥ 20), 7 of the 84 African students (%8,3) and 9 of the 24 Asian students (%37,5) were found above the psychopathological cut point of eating attitudes test. Descriptive statistics also revealed that regarding EAT-26 scale cut-point for psychopathology which was informed as ≥ 20 , %14,81 of the all participants were above the pathological cut point.

Table 6. Descriptive Statistics regarding EAT-26 cut point for psychopathology

	Group	EAT26 Cut point	Groups	\bar{X}	SD	N
EATtotal	African	1		8,72	5,27	77
		2		29,14	8,55	7
		Total		10,42	7,93	84
	Asian	1		7,93	3,63	15
		2		27,44	6,18	9
		Total		15,25	10,69	24
	Total	1		8,59	5,03	92
		2		28,18	7,10	16
		Total		11,50	8,80	108
CESDtotal	African	1		23,13	15,56	77
		2		23,06	17,31	7
		Total		23,12	15,60	84
	Asian	1		20,13	11,12	15
		2		38,43	11,89	9
		Total		26,99	14,36	24
	Total	1		22,64	14,91	92
		2		31,71	16,04	16
		Total		23,98	15,35	108

EAT-26 cut point groups 1: ≤ 19 and 2: ≥ 20

Discussion and Conclusion

Cross-cultural examination of differences regarding eating attitudes and depression of English speaking international university students from Africa and Asia continents was aimed in the presented study. As can be seen from the results of correlation analysis total eating attitudes scores of the participants tend to rise or fall together with exercising more than 60 minutes per day to lose weight, with compensating behaviors like use of laxatives or diuretics, with losing at least 20 pounds in the past 6 months and with being treated for an eating disorder. Besides, "vomiting" and "laxative diuretic usage" was found correlated positively with each other and with "tiredness" as expected. Besides reporting "loss of at least 20 pounds in past six months" and "being treated for an eating disorder" were found positively correlated with each other. Also, analysis revealed that binge eating episodes of participants tended to rise together with "vomiting" and "laxative diuretic usage". Female university students differed significantly with higher means from male students regarding total eating attitudes scale scores. Mentioned findings are consistent with the criteria and parallel with the related literature revealing gender differences and co-existing symptoms of eating disorders (APA, 2013; Crow et al., 2009; Sullivan, 1995).

Correlations also revealed that disordered eating attitudes tended to rise or fall down together with total depressive tendencies and also with "sadness", "tiredness" and "suicide ideas" besides compensating behaviors like "laxative diuretic usage". As well as its correlation with total depression score, laxative diuretic usage was also found rising together with "exercising more than 60 minutes per day to lose weight", "sadness", "loss of appetite", "disordered sleep", "guilt" and "suicidal ideas". "Suicidal ideas" were found as tended to rise together with total depression scores, also with "laxative-diuretic usage", and "loss of at least 20 pounds in previous six months". Analysis revealed that participants with mean scores above the psychopathological cut point for eating attitudes test, differed significantly in terms of laxative diuretic usage, loosing at least 20 pounds, and being treated for an eating disorder. This group also differed with higher total depression scores and "sadness subscale" scores. Mentioned results point out a relation between having depression and having an eating disorder as it was suggested in literature (Assari, & DeFreitas, 2018; Celik et al., 2016) and parallel with findings which indicates an association between having depressive tendencies and being unsuccessful in terms of desired weight loss in obesity (Okumusoglu, 2017a). Therefore, it can be said that findings of the presented study provide support to the claim which suggests depression is a psychopathology that is associated with the epidemiology of eating disorders (De Franca, Gigante, & Olinto, 2014; Reagan, & Hersch, 2005). On the base of the mentioned results it can be said that findings are also supporting the suggestion of Cognitive Theory that claims individual's cognitions are important regarding development and maintenance of psychopathologies (Beck, 1867; Beck, Emery and Greenberg, 1985; Williamson et al., 1999; Williamson et al., 2000). The mentioned results are also consistent with the literature revealing co-existing symptoms of eating disorders (APA, 2013; Brown, Holland, & Keel, 2014; Crow et al., 2009; De Franca, Gigante, & Olinto, 2014; Reagan, & Hersch, 2005; Sullivan, 1995; Sysko et al., 2017).

Regression analysis revealed that, %11 of the variance of eating attitudes was explained by “losing at least 20 pounds in previous six months”. When compensating behaviors as usage of “laxatives and diuretics” and “exercising more than 60 minutes per day with the aim to lose or to control weight” entered the equation, %24 of the variance of eating attitudes was explained by these three variables. As can be seen from the results, the best predictor of the disordered eating is “losing at least 20 pounds in previous six months” which is accepted as an important clinical criterion while deciding existence and seriousness of an eating disorder (APA, 2013; Brown, Holland, & Keel, 2014).

Asian students’ disordered eating attitudes have been found higher than African students’. %8.3 of the African students and %37.5 of the Asian students have scores above the psychopathological cut point of eating attitudes test. Asian students differed with significantly higher mean scores from African students regarding total EAT-26 scale scores as well as compensating behaviors like “laxative diuretic usage”, “vomiting”, “losing at least 20 pounds in previous 6 months”, and “being treated for an eating disorder”. These results are parallel with the literature which informed unhealthier eating attitudes regarding Asian students (McCourt & Waller, 1995; Mumford & Whitehouse, 1988; Yates, Edman, & Aruguete, 2004). Mentioned results can also be accepted as parallel with the studies which revealed that anorexia nervosa is uncommon among Africans (Taylor et al., 2007; Hudson et al., 2007).

On the other hand, no differences have been found between African and Asian university students in terms of having binge eating episodes which can be accepted as parallel with literature which claims that binge eating disorder develops with equal frequency for different ethnicities, for example for African background women and for white women (Striegel-Moore et al., 2000).

No differences have been found between African and Asian university students in terms of depression total scores and subscales of depression except “suicidal ideation”. In this sample, Asian students differed with significantly higher means in terms of suicidal ideation only. Since no differences have been found between groups in terms of total depressive tendencies and other related factors, this result might be evaluated as a culture specific way of thought which based on social learning which has nothing to do with clinical depression. No difference result in terms of total scale scores could be interpreted as becoming homogeneous regarding depressive ideas as a result of having equal level of education. It could also be interpreted as becoming more aware regarding socially desirable non-depressive answers.

While exploring cross-cultural differences, variables as existence of experiences like rapid cultural, political or social changes, traumatic events, and exposure to violence or deprivation might be underlying reasons or related factors that should be taken into account. Leaving out the mentioned variables could be accepted as one of the limitations of the presented study. Hence future studies considering these additional factors are proposed.

On the other hand, usage of same scales for students from different cultures can be mentioned as another limitation of this study. Several probable bias factors in terms of cross-cultural comparison studies which were conducted through same scale have been mentioned in the literature as possible construct bias and item bias which could be originated from the different definitions of the disorder in different cultures and low familiarity regarding items of the scale (Van de Velde et al., 2010). However, since the participants are all English speaking international university students, scales could be used in the original language in which these scales have been created. Besides Cronbach’s Alphas of CESD-R and EAT-26 for the present study have been calculated as 0,86 and 0,78 respectively.

According to results of the presented study, regarding eating disorders it can be said that the risks for eating disorders and associated symptoms may vary depending on cultural differences, gender and psychological conditions of individuals as having depressive tendencies. It can also be concluded that findings –for example which suggests disordered eating attitudes of students’ correlated positively with compensating behaviors like ‘laxative diuretic usage’ and depressive tendencies like ‘sadness’, ‘tiredness’ and ‘suicide ideas’- are parallel with the criteria of eating disorders and with the related literature revealing co-existing symptoms and comorbid disorders of eating disorders. At the same time, results of the presented study could be accepted as consistent with the claim of Cognitive Theory that suggests individual’s cognitions are important regarding development and maintenance of psychopathologies. Cross-cultural studies are important in terms of proper assessment and treatment of culturally diverse sufferers. Therefore, it could be concluded that the findings of the presented study are important in terms of both theory and practice regarding eating disorders which are serious psychopathologies that have an increasing prevalence among youth. For example, since disordered eating attitudes correlated positively with depressive tendencies interventions targeting both seem vitally important. Beside results indicates that at least for this sample prevention and intervention plans should prioritize compensating behaviors like ‘laxative diuretic usage’. On the other hand, beside its practical and theoretical implications it is obvious that the results need further clarification, therefore further cross-cultural studies regarding this subject with international university students are proposed.

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