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Cross-cultural Study of the Prevalence of Depressive Symptoms and Its Severity in Iranian and Indian Adolescents

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The purpose of the present study was to explore the prevalence of depression and the relationship between prevalence of depression and various socio-demographic factors in the adolescent population of India and Iran by giving special attention to gender and age (mid- vs. late-adolescence). Twelve schools (six schools from three different areas of each country and two schools for each of the three areas) were selected through randomized cluster sampling and 1600 students from these schools were included (aged from 14 to 19). Zung Self-Rating Depression Scale (SDS) and Demographic Information Sheet were administered for data collection. The data were analyzed using Odds Ratio. The findings suggest that prevalence rates for adolescent depressive symptoms and their severity in India are comparable to those in Iran. Depressive symptoms prevalence with respect to nationality and gender was also examined. Results indicated that somatic symptoms of loss of libido, anorexia, constipation, psychomotor retardation along with affective symptoms of sadness and spells of crying may offer a sensitive grouping in the detection of depression in Indian adolescents and cognitive/affective symptoms of dissatisfaction, diurnal variation, indecisiveness, emptiness, self-depreciation, irritability and one somatic symptom of sleep disturbance may present as a group of symptoms for the detection of depression in Iranian youth. This information may help the clinicians of both cultures in their work with adolescents and may enhance the accuracy of determining the early appearance, onset, and course of mental health problems in these populations.

Keywords: adolescent, depression, epidemiology, cross-cultural study, India, Iran.

Depression is one of the most prevalent psychiatric disorders in different socio-cultural populations (Ayuso-Mateos, Vazquez-Barquero, Dowrick, Lehtinen, Dalgard, & Casey, 2001; Fisher, 2011) and identified by World Health Organization as *priority mental health disorder* of adolescence because of its high prevalence, recurrence, ability to cause significant complication and impairment (World Health Organization, 2003). Worldwide prevalence for major depression in adolescence is 15% to 20% (Lewinsohn, 2002) with a recurrence rate of 60–70% (Birmaher, Arbelaez, & Brent, 2002) often leading to suicide, school drop-out, pregnancy, substance abuse, progressing into adult depression (Weissman, Wolk, Goldstein, Moreau, Adams, Greenwald, et al., 1999). Depressive symptoms increase from childhood to adolescence, and a marked increase appears between ages of 13 and 15, reaching a peak around 17-18 years of age, and later stabilizing at the adult rate (Radolff, 1991). Rates of depression for girls have been shown to be higher than boys. This discrepancy seems to appear after the age of 15 and remains present throughout adulthood (Nolen-Hoeksema & Girgus, 1994). These issues motivated the researchers to conduct the prevalence or incidence studies of depression in different non-clinical populations.

Appreciation for cultural differences may enhance the reliability and accuracy of determining the early appearance, onset, and course of mental health problems in this population. It is notable that most of the existing cross-cultural studies in adolescent's depression mainly involve comparison of the levels of depressive symptoms in the U.S. (Kashani, Carlson, Beck, & Hoeper, 1987) / European cultures (Ravens-Sieberer, Erhart, Gosch, & Wille, 2008) or in comparison to an Eastern culture (e.g., Stewart, Lewinsohn, Lee, Ho, Kennard, Hughes, et al., 2002; Yeung, Howarth, Chan, Sonawalla, Nierenberg, & Fava, 2001). Overall, these studies recognized that the prevalence of adolescents depressive disorders is different between countries and within countries, across various ethnicities (Ruiz, 2001).

The prevalence of depressive symptoms and severity among Indian and Iranian adolescents has been reported in some studies. For example, 1014 Indian adolescents aged from 13 to 19 in primary-care pediatric care settings completed The Beck Depression Inventory (BDI). 11.2% of school dropouts had reported extreme levels of depression as opposed to 3% of ones who attending school and college (Nair, Paul, & John, 2004). Furthermore, one Iranian study (Modabber-Nia, Shojai-Tehrani, Moosavi, Nakisa, & Fallahi, 2007), conducted using The Beck Depression Inventory (BDI) in the North of Iran (Rasht), has been reported 34% of the 1250 senior high school adolescents in that specific region were suffering depression.

There is a fairly good consensus regarding the similarities in life style, affiliative obedience toward adult authority, family centeredness, dominant values etc., in Iranian and Indian cultures because of close physical proximity and extensive cultural transactions for many countries (Sharma, Parnian, & Spielberger, 1983). However, drawing from ethnographic literature on emotion, it has been illustrated that different cultures may have different symbols in displaying depressive symptoms (Jenkins, Kleinman, & Good, 1990). While people of some Asian cultures like Iran are encouraged to display their sadness and sorrow (Good, Good, & Moradi, 1985), other cultures like Indians tend to express psychological conflicts through somatic symptoms. With regard to depression, some studies including two cross-cultural studies examining adults from India indicate that Indian depressed individuals tend to present the depressed mood with somatic problems (Raguram, Weiss, Keval, & Channabasavanna, 2001; Sethi, Nathawat, & Gupta, 1973; Srinivasa Murthy, Subramaniam, & Chatterji, 1990). Also, there is evidence (Sharma, Parnian, S., & Spielberger, C. D., 1983) that Iranian and Indian school children and undergraduates report different levels of anxiety. The Iranian youth had higher levels of total anxiety and worry than the Indian youth.

To our knowledge, most studies on depression in adolescents are from the developed countries and there are few studies from under developing countries. Specifically, there is no study in the literature comparing depressive symptoms prevalence and severity in adolescents from Indian and Iranian cultures. The purpose of the present study was to explore the prevalence of depression and its severity and the relationship between prevalence of depression and various socio-demographic factors in the adolescent population of India and Iran by giving special attention to gender and age (mid- vs. late-adolescence). The following question is posed: Is there any differences between the two cultures regarding depressive symptoms prevalence and depressive severity when we consider age (Mid vs. Late adolescence) and gender?

Method

Participants

Data were collected in three metropolitans (Tehran, Arak, and Tabriz) of Iran and three ones (Delhi, Mumbai, and Chandigarh) of India. One thousand six hundred adolescents studying in various schools and colleges served as subjects. The schools were chosen by a randomized cluster sampling method from different districts in Iran (Tehran, Arak, and Tabriz) and India (Delhi, Mumbai, and Chandigarh). The students represent twelve different schools, two schools for each of three districts in Iran and India (i.e., 6 schools for each culture). Two classes from each school were sampled (one class with mid-adolescence age and the other one with late-adolescence age). The description of the subjects with regard to age, gender, and place of residence is given in Figure1.

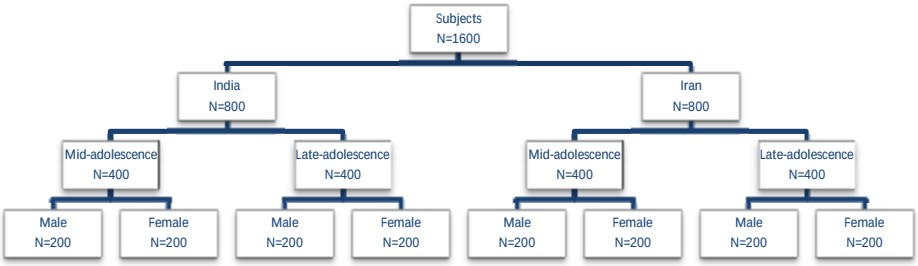

Figure1. Sample Distribution with Regard to Age, Gender, and Place of Residence

The age of the participants in mid-adolescence ranged from 14 to 16 years, while the age of the participants in the late adolescence ranged from 17 to 19 years. The sample was homogenous with respect to socio-economic status of the participants belonging to the middle socio-economic status. All the participants were living with their parents. If the subjects had no evidence of drug abuse or addiction and if they have not reported any psychiatric disorder they were included in the study.

Measurement

The socio-demographic information. Respondents were completed a set of questions regarding their age, gender, education level, and family income.

The Zung Self-rating Depression Scale (SDS: Zung, 1965). SDS is a 20-item self-administered questionnaire measuring the frequency of depressive symptomatology. Out of the 20 items of the scale, 10 are worded symptomatically positive and 10 symptomatically negative. This

scale is intended to map complex behavioral changes, cognitive processes and their affective concomitants. SDS covers five of nine depression symptoms of DSM IV (APA, 2000) whereas four are partially covered. Participants are asked to rate each of the 20 items in terms of symptoms or feelings described. Subjects rate each item with regard to how they felt during the preceding week using a 4-point Likert scale, with 4 representing the most unfavorable response for positively worded items. The scores range from 20 to 80 with higher scores indicating the presence of higher depressive symptoms (Most people with depression score between 50 and 69, while a score of 70 and above indicate severe depression. Scores are not meant to offer strict diagnostic guidelines but rather denote levels of depressive symptomatology that may be of clinical significance. Overall, the SDS has been shown to be relatively valid and to have high internal consistency, exhibiting an alpha coefficient of 0.84 (for review, see (Zung, 1986)). The SDS was found to be the primary discriminating variable in distinguishing depressed from non-depressed adult participants (Thurber, Snow, & Honts, 2001).

Analysis of Data

In the current study we implemented odds ratios (ORs) for analysis of the data. ORs are used in order to assess the risk of a particular outcome (e.g., depressive symptoms) if certain factor (e.g., being from a specific culture like India) is present. The OR is a relative measure of risk, telling us how much more likely it is someone who is exposed to the factor under study (e.g., Iranian vs. Indian culture) will develop the outcome as compared to someone who is not exposed (Bland & Altman, 2000). For the current study we used ORs for comparing depressive symptoms in Indian and Iranian adolescents. The Cochran-Mantal-Haenszel statistics were used to test the significance of the odds of depression in the Iranian adolescents as compared to their Indian peers (McDonald, 2009). To investigate the prevalence of depressive symptoms, each item of the

Zung's scale referring to a specific depressive symptom was categorized in terms of the percentage of respondents reporting higher (often/always) or lower (never/sometimes).

Ethics

The nature and purpose of the study were explained to each participant before his or her consent was sought. Individual informed consent was gained from participants. Participation was voluntary. The informed consent of respondents was confirmed by the signature or the left thumbprint. Participants were also assured of confidentiality and informed during the scale completion of their right to withdraw from the study at any time.

Results

Sample Data

For the Iranian and Indian sample, respectively, the minimum raw sum score on SDS was 22 and 23 and the maximum for both group was 68. The mean SDS score was 40.14 (SD=7.66) and 38.98 (SD=6.58).

The Prevalence of Depressive Symptoms. The prevalence of depressive symptoms, measured with high rates of depressive symptoms on SDS, was examined in relation to gender, age and culture.

Depressive symptoms prevalence with respect to nationality and gender. Tables 1 and 2 show the percentages of male and female adolescents from both nationalities reporting high (often, always) rates of depression symptoms in SDS and Odds Ratio (OR) for each symptom of depression. The results suggest that at mid-adolescence, the male Indian adolescents show more frequent symptoms of loss of libido (OR=2.79; CI=1.52-5.14), loss of concentration (OR= 1.98; CI=1.03-3.79), and psychomotor retardation (OR=2.08; CI: 1.08-3.9) compared to their Iranian peers, also the Indian female adolescents at this stage reported more frequent symptoms of sadness (OR=1.97; CI:1.08-3.86), spells of

crying (OR=2.7; CI:1.20-6.38), anorexia (OR=2.18; CI: 1.21-3.90), loss of libido (OR= 7.83; CI: 4.11-14.92), constipation (OR=9.38; CI: 1.68-52.28), loss of concentration (OR=2.67; CI: 1.46-4.89) compared to their Iranian peers; also less frequent diurnal variation (OR=.44; CI: 0.25-0.79), sleep disturbance (OR=.33; CI: 0.16-0.68), and indecisiveness (OR:.50; CI: .27-.93) in comparison to the Iranian females. At late-Adolescence, the Iranian male students reported more frequent diurnal variation (OR=.43; CI: .23-.82), sleep disturbance (OR= .44; CI: .21-.92), irritability (OR= .45;CI: .25-.81), emptiness (OR=.50; CI: .27-.89), and less frequent constipation (OR= 6.49; CI: 1.12-37.4) compared to their Indian peers. Also, the Iranian females at this stage continued to show more frequent symptoms of diurnal variation (OR= .23; CI: .13-.44), sleep disturbance (OR= .21; CI:.10-.50), and indecisiveness (OR=.23; CI: .12-.43) compared to the Indian females; they also reported more irritability (OR=.48; CI: .27-.85), self-depreciation (OR=.41; CI:.23-.74), and dissatisfaction (OR=.30; CI: .16-.55). More frequent symptoms of constipation (OR=6.42; CI: 3.36-12.2) and loss of libido (OR=3.45; CI: 1.14-10.4) in the Indian female adolescents also continued at this stage.

Table 1

Main Findings of Culture and the Prevalence of Severe Depressive Symptoms in Male and Female Students at Mid-Adolescence

SDS No.	Symptoms	Male %		OR	95% CI	Female %		OR	95% CI
		Indian	Iranian			Indian	Iranian		
1	Sadness	19.5	9.75	2.27	.99-5.18	29.5	17.5	**1.97**	1.08-3.86
2	Diurnal variation	32.0	38.0	.76	.42-1.37	35.0	54.5	**.44**	.25- .79
3	Spells of crying	6.5	0.5	13.83	.76-249.01	21.5	9.0	**2.7**	1.20-6.38
4	Sleep disturbance	13.5	12.5	1.09	.47-2.49	13.0	31.0	**.33**	.16- .68
5	Anorexia	39.5	31.5	1.41	.79-2.5	46.5	28.5	**2.18**	1.21-3.90
6	Loss of libido	45.5	23.0	**2.79**	1.52-5.14	65.5	19.5	**7.83**	4.11-14.92
7	Weight loss	7.5	9.50	.77	.28-2.10	9.50	10	.94	.37-2.40
8	Constipation	6.5	2.5	2.71	.61-11.98	12.5	1.5	**9.38**	1.68-52.28
9	Tachycardia	14.0	7.5	2.007	.78-5.1	21.5	21.5	1	.51-1.96
10	Fatigability	17.0	13.0	1.37	.62-2.99	16.0	25.5	.57	.28-1.14
11	Loss of concentration	32.5	19.5	**1.98**	1.03-3.79	46.5	24.5	**2.67**	1.46-4.89
12	Psychomotor retardation	34.0	20	**2.06**	1.08-3.9	31.0	40.0	.67	.37-1.20
13	Psychomotor agitation	34.5	27.0	1.42	.77-2.60	33.5	41.0	.72	.40-1.29

14	Hopelessness	24.0	17.5	1.48	.74-2.96	27.5	28.5	.95	.51-1.76
15	Indecisiveness	25.0	28.5	.8	.44-1.56	24.5	39.0	**.50**	.27-.93
16	Irritability	41.0	48.5	.74	.42-1.30	46.0	57.0	.64	.36-1.12
17	Self-depreciation	35.0	41.5	.95	.54-1.67	43.0	48.0	.81	.46-1.42
18	Emptiness	26.0	30.5	.80	.43-1.48	39.5	43.0	.86	.46-1.52
19	Suicidal Thoughts	21.5	16.5	1.38	.68-2.82	18.0	24.5	.67	.34-1.34
20	Dissatisfaction	24.5	38.0	.52	.29-.97	32.5	39.0	.75	.42-1.34

* P<.05

Table 2

Main Findings of Culture and the Prevalence of Severe Depressive Symptoms in Male and Female Students at Late-Adolescence

SDS No.	Symptoms	Male %		OR	95% CI	Female %		OR	95% CI
		Indian	Iranian			Indian	Iranian		
1	Sadness	19.0	15.0	1.32	.63-2.8	16.5	27.0	.53	.26-1.06
2	Diurnal Variation	20.5	37.0	**.43**	.23-.82	21.5	53.5	**.23**	.13-.44
3	Spells of Crying	13.0	9.0	1.51	.61-3.71	14.0	11.5	1.25	.54-2.88
4	Sleep Disturbance	12.5	24.5	**.44**	.21-.92	7.5	28.0	**.21**	.10-.50
5	Anorexia	31.5	29.5	1.09	.60-2.0	40.5	30.5	1.55	.86-6.78
6	Loss of Libido	35.5	34.5	1.04	.58-1.86	58.5	18.0	**6.42**	3.36-12.2
7	Weight Loss	19.5	18.0	1.10	.54-2.24	15.5	16.0	.96	.45-2.06
8	Constipation	9.0	1.5	**6.49**	1.12-37.4	14.0	4.5	**3.45**	1.14-10.4
9	Tachycardia	17.0	15.5	1.11	.52-2.36	17.5	15.5	1.15	.54-2.44
10	Fatigability	20.0	24.0	.79	.40-1.54	21.0	32.5	.55	.30-1.04
11	Loss of Concentration	24.5	26.0	.92	.48-1.74	35.5	24.0	1.74	.93-3.22
12	Psychomotor Retardation	24.0	32.0	.67	.36-1.25	28.0	41.0	.56	.30-1.01
13	Psychomotor	34.0	32.0	1.06	.6-1.92	33.5	45.0	.61	.34-1.09

	Agitation								
14	Hopelessness	20.5	30.5	.58	.30-1.12	25.0	34.5	.64	.35-1.19
15	Indecisiveness	22.0	34.0	.54	.29- 1.02	19.0	50.5	**.23**	.12-.43
16	Irritability	29.5	48.0	**.45**	.25-.81	50.5	68.0	**.48**	.27-.85
17	Self-Depreciation	32.5	35.5	.87	.48-1.57	29.5	50.5	**.41**	.23-.74
18	Emptiness	29.5	45.5	**.50**	.27-.89	33.5	46.5	.58	.32-1.02
19	Suicidal Thoughts	13.0	19.0	.63	.29-1.37	12.0	19.5	.56	.25-1.22
20	Dissatisfaction	22.0	34.5	.53	.29-1.00	21.5	48.0	**.30**	.16-.55

* P<.05

Depressive symptoms prevalence with respect to nationality and age. Tables 3 and 4 depict the percentage of adolescents from both nationalities at mid- vs. late-adolescence reporting high (often, always) rates of depression symptoms in SDS and Odds Ratio for each symptom of depression.

Table 3

Main Findings of Culture and the Prevalence of Severe Depressive Symptoms in Male Adolescents at Mid and Late Adolescence

SDS No.	Symptoms	Mid-Adolescence %		OR	95% CI	Late-Adolescence %		OR	95% CI
		Indian	Iranian			Indian	Iranian		
1	Sadness	19.5	8.5	**2.60**	1.1-6.15	19.0	15.0	1.32	.63-2.8
2	Diurnal Variation	32.0	38.0	.76	.42-1.37	20.5	37.0	**.44**	.23-.82
3	Spells of Crying	6.5	0.5	13.83	.76-249.0	13.0	9.0	1.5	.61-3.7
4	Sleep Disturbance	13.5	12.5	1.09	.47-2.5	12.5	24.5	**.44**	.21-.92
5	Anorexia	39.5	31.5	1.42	.8-2.54	31.5	29.5	1.1	.60-2.0
6	Loss of Libido	45.5	23.0	**2.8**	1.52-5.14	35.5	34.5	1.04	.58-1.8
7	Weight Loss	7.5	9.5	.77	.29-2.1	19.5	18.0	1.1	.54-2.2
8	Constipation	6.5	2.5	2.71	.61-11.98	9.0	1.5	**6.5**	1.1-37.4
9	Tachycardia	14.0	7.5	2.00	.78-5.11	17.0	15.5	1.11	.52-2.36
10	Fatigability	17.0	13.0	1.37	.62-3.0	20.0	24.0	.79	.40-1.55
11	Loss of Concentration	32.5	19.5	**1.98**	1.04-3.80	24.5	26.0	.92	.49-1.74
12	Psychomotor Retardation	34.0	20.0	**2.06**	1.08-3.91	24.0	32.0	.67	.36-1.25
13	Psychomotor Agitation	34.5	27.0	1.42	.77-2.6	34.0	32.5	1.07	.60-1.92
14	Hopelessness	24.0	17.5	1.46	.74-2.96	20.5	30.5	.58	.30-1.12
15	Indecisiveness	25.0	28.5	.83	.44-1.56	22.0	34.0	.54	.30-1.02
16	Irritability	41.0	48.5	.73	.42-1.3	29.5	48.0	**.45**	.25-.81
17	Self-Depreciation	35.0	26.5	1.50	.81-2.73	32.5	35.5	.87	.49-1.57

18	Emptiness	26.0	30.5	.80	.43-1.5	29.5	45.5	**.50**	.27-.90
19	Suicidal Thoughts	21.5	16.5	1.38	.68-2.82	13.0	19.0	.63	.30-1.37
20	Dissatisfaction	24.5	38.0	**.53**	.29-.97	22.0	34.5	.53	.28-1.00

* P<.05

Table 4

Main Findings of Culture and the Prevalence of Severe Depressive Symptoms in Female Adolescents at Mid and Late Adolescence

SDS No.	Symptoms	Mid-adolescence %		OR	95% CI	Late-adolescence %		OR	95% CI
		Indian	Iranian			Indian	Iranian		
1	Sadness	29.5	17.5	**1.97**	1.0-3.86	16.5	27.0	.53	.26-1.06
2	Diurnal variation	35.0	54.5	**.45**	.24-.80	21.5	53.5	**.24**	.13-.44
3	Spells of crying	21.5	9.0	**2.77**	1.2-6.38	14.0	11.5	1.25	.54-2.88
4	Sleep disturbance	13.0	31.0	**.33**	.16-.68	7.5	28.0	**.20**	.08-.50
5	Anorexia	46.5	28.5	**2.18**	1.21-3.91	40.5	30.5	1.55	.86-2.78
6	Loss of libido	65.5	19.5	**7.83**	4.11-14.9	58.5	18.0	**6.42**	3.36-12.26
7	Weight loss	9.5	10.0	.94	.37-2.4	15.5	16.0	.96	.45-2.44
8	Constipation	12.5	1.5	**9.38**	1.68-52.3	14.0	4.5	**3.45**	1.14-10.4
9	Tachycardia	21.5	21.5	1	.51-1.96	17.5	15.5	1.15	.54-2.44
10	Fatigability	18.0	25.5	.64	.32-1.26	21.0	32.5	.55	.30-1.04
11	Loss of concentration	46.5	24.5	**2.67**	1.46-4.9	35.5	24.0	1.74	.94-3.22
12	Psychomotor retardation	31.0	40.0	.67	.37-1.2	28.0	41.0	.56	.31-1.01
13	Psychomotor agitation	35.5	41.0	.72	.4-1.3	33.5	45.0	.61	.34-1.01
14	Hopelessness	27.5	28.5	.95	.5-1.76	25.5	34.5	.65	.35-1.10
15	Indecisiveness	24.5	39	**.51**	.27-.93	19.0	50.5	**.23**	.12-.43
16	Irritability	46.0	57.0	.64	.36-1.12	50.5	68.0	**.48**	.27-.85
17	Self-depreciation	43.0	48.0	.81	.47-1.42	29.5	50.5	**.41**	.23-.7
18	Emptiness	39.5	43.0	.86	.49-1.52	33.5	46.5	.58	.32-1.02
19	Suicidal Thoughts	18.0	24.5	.67	.34-1.34	12.0	19.5	.56	.25-1.22
20	Dissatisfaction	32.5	39	.75	.42-1.34	21.5	48.0	**.29**	.16-.55

* P<.05

Furthermore, with respect to the gender of participants, we compared the frequency of depressive symptoms between the two cultures at mid- and late adolescence (Tables 3 and 4). As it is depicted in Table 3, the Indian male adolescents experience more frequent symptoms of sadness (OR= 2.60; CI: 1.1-6.15), loss of libido (OR= 2.8; CI: 1.52-5.14), loss of concentration (OR=1.98; CI: 1.04-3.80), psychomotor retardation (OR=2.06;CI:1.08-3.91) and less symptoms of dissatisfaction (OR=.53; CI: .29-.97) in comparison to the Iranian male adolescents at the same stage. How- ever at late adolescence the Iranian male adolescents suffer more symptoms of diurnal variation (OR=.44; CI:.23-.82), sleep disturbance (OR=.44; CI: .21-.92), irritability (OR=.45; CI: .25-.81), emptiness (OR=.50; CI: .27-.90) and less frequent constipation (OR=6.5; CI: 1.1-37.4) symptom.

Table 4 shows the results of the OR analysis for comparing the female adolescents of both cultures at the two stages of adolescence. The Indian female adolescents at mid-adolescence report more symptoms of sadness (OR=1.96; CI: 1.0-3.86), spells of crying (OR=2.77; CI: 1.2-6.38), anorexia (OR=2.18; CI: 1.21-3.91), loss of libido (OR=7.83; CI: 4.11-14.9), constipation (OR=9.38; CI: 1.68-52.3), loss of concentration (OR=2.67; CI: 1.46-4.9) and less diurnal variation (OR=.45; CI: .24-.80), sleep disturbance (OR=.33; CI: .16-.68) and indecisiveness (OR= .51; CI: .27-.93) compared to the Iranian ones. At the late-adolescence, the Iranian females' report more diurnal variation (OR=.24; CI: .13-.44), sleep disturbance (OR=.20; CI: .08-.50) and indecisiveness (OR=.23; CI: .12-.43) in addition to their more frequent reports of irritability (OR=.48; CI: .27-.85), self-depreciation (OR=.41; CI: .23-.7) and dissatisfaction (OR=.29; CI: .16-.55). the Indian females' report loss of libido (OR=6.42; CI: 3.36-12.26) and constipation (OR=3.45; CI: 1.14-10.14) which seem to continue up to this stage.

Discussion

The findings suggest that the prevalence rates for the adolescent depressive symptoms severity in India are comparable to those in Iran, that is, 15.60% and 16.40% of the total population of psychiatrically normal Iranian and Indian adolescents scored in the severe range of the depressive symptoms. 11.5% of the Indian males in mid-adolescence in contrast to 4.50% of those from Iran scored in the severe range of global measure of depression. Furthermore, 25% of the Indian females in mid-adolescence in contrast to their Iranian peers scored in the severe range of the global measure of depression. 17.5% of the Iranian males in late-adolescence vs. 4.5% of their Iranian male peers reported a severe level of depression.

Cultural differences in symptoms prevalence were also considered. It was revealed that fewer Iranian males at mid-adolescence reported loss of libido, loss of concentration and psychomotor retardation than those in India. Also, fewer Iranian females at this stage reported sadness, spells of crying, anorexia, loss of libido, constipation, loss of concentration, and described more diurnal variation, sleep disturbance, and indecisiveness.

At late-adolescence, the Iranian males reported more diurnal variation, sleep disturbance, irritability, emptiness, and less constipation than those in India. At this stage, The Iranian females as well as males reported more diurnal variation, sleep disturbance, irritability; also indecisiveness, self-depreciation, and dissatisfaction symptoms have been described more and the constipation (a similar pattern was true for the Indian males in this symptom as compared to the Iranians), loss of libido reported less in Iranians as compared to their Indian female peers.

Iranian males at mid-adolescence reported less sadness, loss of libido and concentration, psychomotor retardation, and more dissatisfaction than those in India. However, at late-adolescence they reported more diurnal variation, sleep disturbance, irritability, emptiness, and less constipation.

For the Iranian females at mid-adolescence stage, there were less reports of sadness, spells of crying, anorexia, loss of libido, concentration,

and constipation. Iranians report more diurnal variation, sleep disturbance, indecisiveness at mid-stage which was also appeared at late-stage. At late-stage they also reported more irritability, self-depreciation and dissatisfaction. Iranian females' less reports of loss of libido and constipation also seems to be appeared at late-stages like mid-stages.

Cultural differences in symptoms were apparent and they were almost consistent with the literature that postulates more somatic and less affective/cognitive symptoms in Indian compared to the Iranian adolescents (Conrad & Pacquiao, 2005; Patel, Pereira, & Mann, 1998). Importantly, Indians did show more apparent somatic symptoms, more loss of libido, anorexia, constipation, psychomotor retardation; two frequently reported affective symptoms of sadness and spells of crying and one frequently reported cognitive symptom of loss of concentration. Whereas, Iranian youth reported more cognitive and affective symptoms including dissatisfaction, diurnal variation, indecisiveness, emptiness, self-depreciation, irritability and one frequently reported somatic symptom of sleep disturbance.

It seems that the somatic symptoms of depression is a preferential pathway in expression of distress in Indian culture; however, we found few simultaneous cognitive and affective symptoms that contradicts the suggestion that Indian youth express their symptoms only somatically and are unaware of the affective and cognitive concomitants of depression. In addition, for the Iranian youth, affective/ cognitive symptoms were reported more frequently than the somatic ones. However, sleep disturbance as a somatic symptom was also described persistently in both genders and ages (mid- and late-adolescence). Findings indicated that Indian students' scores on the mental health questionnaire were less than the Iranians and also their mental health situation was better than the Iranian students; also the Indian students' scores on life satisfaction scale were higher than the Iranian students. Furthermore, the Indian students were more satisfied with their life than the Iranian students (Kord Tamini

& Mohammady Far, 2009). In addition, Symptoms of depression show some cross-cultural variation, probably resulting from differences in cultural standards regarding acceptable expressions of emotional distress. For example, people in South Korea are less likely to describe a sad mood or suicidal thoughts than people in the United States (Chang, Hahm, Lee, Shin, Jeon, Hong, Lee, Lee, Cho, 2008). Complaints of nerves and headaches are common in Latino culture, and reports of weakness, fatigue, and poor concentration are common in some Asian cultures (Simon, Goldberg, Von Korff, & Ustun, 2002).

Future studies are needed to examine how somatic and affective/cognitive symptoms shift in relation to each other in different Asian cultures. As mentioned earlier findings gather by Jenkins, Kleinman, & Good (1990) indicated that different cultures may differ from each other in displaying their emotions.

Whether the findings of high somatic symptoms and high cognitive symptoms are specific to highly modernized Iranian cities or common to other Iranian subgroups awaits further investigations. Models of culture changes (Kagicibasi, 1996) have offered the template that traditional cultures development does not simply mean they become more like the West. Rather, they retain some of the central collective interpersonal emphases and agendas while adopting others that relate to individualistic values. In studies of community adolescents and their parents (Stewart, Bond, Deeds, & Chung, 1999; Stewart, et al., 2002), it was found that modernized groups **and** individuals from traditional Asian cultures endorse individualistic values at levels close to their Western counterparts. This mixed picture in expression of pathological symptoms would similarly suggest retention of patterns that allow indirect expression of distress through somatic symptoms (motivated by traditional collective cultural dynamics) but a simultaneous awareness revealed a questioning of inner experiences (through greater awareness of the separated self (Kagicibasi, 1996) of individualistic cultures).

Our findings have practical implications. Somatic symptoms of loss of libido, anorexia, constipation, psychomotor retardation along with affective symptoms of sadness and spells of crying may offer a sensitive grouping in the detection of depression in the Indian adolescents; and cognitive/affective symptoms of dissatisfaction, diurnal variation, indecisiveness, emptiness, self-depreciation, irritability and somatic symptom of sleep disturbance may present a group of symptoms for the detection of depression in the Iranian youth. These groups of symptoms should not be dismissed by the clinicians of both cultures. Prevalence information has public health and policy implications with regard to the commitment of resources to prevention and treatment. With regard to few resources of clinical intervention for adolescents in both cultures and given the long-term cost of untreated depression for societies, there is an urgent need for education, screening, and treatment programs for these youth. An important limitation of our study is the use of self-report for measuring depressive symptoms which can limit the generalizability of our findings, so the results of our study on this topic can be considered as preliminary. We may also be underestimating or overestimating the level of depressive symptoms because we used information from the adolescent alone without informants. Although we hypothesized that development of both cultures may be responsible for the presence of the mixed (somatic and affective/cognitive) depressive symptoms, indices of the development have not been included in this study. Future studies should describe and measure the agents by which the development promulgate the vulnerability to developing depressive symptom. Limited fundings restricted this study into the three cities of each country; these findings could differ if the study were conducted in other ethnic groups in Iran and India.

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