Mental Health in Post-Socialist Turmoil:
The Epidemiology of Depression in Uzbekistan

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ABSTRACT

BACKGROUND: Limited research concerning mental health outcomes in post-socialist countries has been conducted, particularly during the transition period of the 1990s in Central Asian. In Uzbekistan, the transition period is characterized by unemployment, poor economic indicators, and deteriorating health. These issues may be associated with mental health outcomes, which this paper intends to explore.

METHODS: The 2002 Uzbekistan Health Examination Survey is a nationally representative sample of women 15-49 years old and men 15-59 years old in post-socialist Uzbekistan. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D). Multivariate logistic regression is used to examine the association of depressive symptoms with demographic, socioeconomic, and health factors separately for men and women.

RESULTS: Overall, the prevalence of depressive symptoms (CES-D score > 15) is 13.72% for women and 4.94% for men. Multivariate findings show socioeconomic status, operationalized as education and employment status, is associated with greater odd of depressive symptoms for men but not women. Individuals report more chronic conditions also have significantly higher odds of depressive symptoms.

CONCLUSION: Mental health is an important issue to consider in Uzbekistan given the uncertain social, political, and economic climate. This study reveals groups disadvantaged groups in terms of depressive symptoms, such as single individuals and individuals living in environmentally devastated areas.

INTRODUCTION

As one of the most researched components of mental health, depression is good measure of overall psychological health because it correlates with other indicators of distress, such as anxiety, unhappiness, and self-esteem (Mirowsky and Ross 1989; Pearlin and Johnson 1977). In addition, depression is associated with physical health, such as physical disability (Ormel et al. 1994), heart disease (Glassman and Shapiro 1998), and mortality risk (Bruce and Leaf 1989).

Although depression is a well-researched health outcome in Western contexts, levels of depressive symptoms have not been studied to this extent in post-socialist countries. Several deviations from well-established relationships of depressive symptoms with demographic and psychological factors have been documented in post-socialist mental health research, including a positive correlation between depression and age (Kopp et al 2000), education (Hraba et al 1994), and self-esteem (Lee et al 1994). These relationships may differ from the established literature in Western contexts because of the different effect of the transition period on population sub-groups. For example, older individuals may be less able to the changing political, social and economic environment than young individuals. Similarly, individuals with high levels of education may be more unable to adapt to the changing economic environment than individuals with low education due to rising unemployment in government positions.

Levels of depressive symptoms also differ in post-socialist compared to other countries. Studies in Central and Eastern Europe and Russia find depression higher in post-socialist countries compared to Western Europe (Wardle et al 2004). Also, community samples of married women in 1990-1991 reveal that women living in the Czech Republic have significantly more depressive symptoms than women in the United States (Lorenz, Hraba, Conger, and Pechacova 1996). One of the highest levels of depressive symptoms in the region was found in

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study of three rural communities in Russia in 1993—70 percent of respondents were categorized as having probable depression (Dershem, Patsiorkovski and O'Brien 1996). Comparing levels of depression before and during the transition period, levels of depression were elevated in Hungary during the transition years of the 1990s (Kopp et al 2000).

While increasing research on mental health slowly expands to post-socialist countries, mental health in post-socialist Central Asia is not widely researched. I fill this gap through the investigation of the distribution and prevalence of depressive symptoms across demographic, economic, and health factors in post-socialist Uzbekistan. Since "depression...is hypothesized to be one indicator of a person's ability to cope with hardship and stress associated with socioeconomic change" (Dershem et al. 1996), this investigation will attempt to shed light on certain demographic and social groups in Uzbekistan who may be been disadvantaged the most by the social and economic turmoil resulting from the collapse of the Soviet Union. First, I describe previous research on depression in post-socialist countries. After this, I detail the economic, political, and social climate in post-socialist Uzbekistan. Then, I describe how this climate may influence depressive symptoms. Results from logistic regression relating depressive symptoms to demographic, socioeconomic, and objective health are discussed. Finally, I conclude with how this research may be used for future policy.

Uzbekistan

As the third most-populous former Soviet Union republic, Uzbekistan contains more than twenty-five million people, about eighty percent of whom are ethnic Uzbeks (Nazirov and Semenov 2002). As with the other Central Asian countries, Uzbekistan is a relatively young country compared to other post-socialist countries. In 1999, researchers estimate that over 35

percent of the population is under age 20. Although still high for a post-socialist country, the total fertility rate dropped from a peak of 5.6 in 1974 to 3.1 in 1999 (Gentile 2007).

After the fall of the socialist Soviet state and subsequent declaration of independence in 1991, social, economic, and political turmoil in Uzbekistan resulted in an uncertain environment (Lewis 1993; Tishkov 1997). Categorized by the World Bank (2009) as a low-income country, Uzbekistan's main economic sector is agriculture, as it remains one of the largest cotton producers in the world. Gross domestic product decreased more than twenty percent between 1989 and 1998 (Monee Project 1999) amidst increasing economic inequality (Ilkhamov 2001; Kandiyoti and Azimova 2004) and rising unemployment (Welter and Smallbone 2008). Uzbekistan's "new poor" are emerging, defined as individuals that are now unemployed or underemployed due to lacking state funds, including government employees, farm workers, and industrial workers (Ilkhamov 2001). The urban, educated population may have been disproportionately affected by the disintegration of the state, because redundant positions in the "non-productive" sphere were eliminated during the transition to a semi-market economy across Central Asia (Falkingham 1999; Tokhtakhodjaeva 1999).

Education and health care have also suffered during this economic transition. The disintegration of the mandatory state education system resulted in an estimated one out of every seven children of school age not attending school (Monee Project 1999). Similarly, public spending on health care as a percentage of GDP consistently decreased through the 1990's along with health care quality (Kutzin and Cashin 2002). Uzbekistan does not have a national mental health program (WHO 2005).

The political climate has gone through dramatic changes due to the disintegration of the Soviet political structure, the possible "re-Islamization" of society, and ethnic conflict,

particularly in the Ferghana Valley. Increasing influence of Islam in Uzbekistan, as well as throughout the other Central Asian countries, concerns government officials due to possible extremist tendencies. This has led to coercive measures by the government, such as imprisonment of religious leaders, in order to stop unofficial practice of Islam (Hanks 2007). Additionally, this re-traditionalization has affected women through earlier marriage, increasing modesty of dress, and decreasing education (Koroteyeva and Makarova 1998). The influx of young rural inhabitants to large cities is also a concern in the context of radical Islam. From a community study in the Ferghana Valley, migrants to large cities may find impoverishment and unemployed, and then turn to radical Islamic movements (Ilkhamov 2001).

As one of many consequences of the dissolution, individual health indicators do not show signs of improvement. Uzbek infant and child mortality fluctuated around relatively high levels during the post-Soviet period, estimated at 51 deaths per 1,000 live births (UHES 2002). Life expectancy changed little during the 1990's, estimated at 68 years for women and 63 for men in 2003 (WHO 2006).

Health issues are exacerbated in areas of environmental degradation from years of Soviet resource extraction and destructive irrigation. In Uzbekistan's Aral Sea region, infant mortality rose as high as 110 deaths per 1,000 infants—almost twice the national average and one of the highest infant mortality rates among the post-Soviet states (Feshbach and Friendly 1992).

METHODS

Data

The 2002 Uzbekistan Health Examination Survey (UHES) is a nationally representative sample of 5,463 women (ages 15-49) and 2,333 men (ages 15-59) that provides demographic, reproductive, and health data (Macro International). The survey is a weighted, multistage,

stratified, cluster design. About two hundred clusters were selected across the country, with twenty households selected within each cluster. All females ages 15-49 in each household were eligible for the survey. In every third household, males ages 15-59 were eligible, except for Tashkent City where every 15-59 year old male in each household was eligible. The Autonomous Republic of Karakalpakstan, Ferghana Oblast, and Tashkent City were oversampled.

Variables

Depressive symptoms are measured using the Center for Epidemiologic Studies Depression Scale (CES-D). The CES-D measures depressive symptomatology, but does not diagnose clinical depression (Radloff 1977). The CES-D was conducted in Uzbek or Russian, depending on which language the respondent choose to take the survey. Referring to the week prior to the interview, respondents rate twenty statements as to the frequency the individual agrees with each statement. Categories include: "rarely" or "none of the time" (less than one day, coded 0), "some or a little of the time" (one to two days, coded 1), "occasionally or a moderate amount of the time" (three to four days, coded 2), or "most or all of the time" (five to seven days, coded 3). Four questions are reverse coded to correspond to the response and coding direction of the remaining questions. By summing the twenty question survey into an index ranging from zero to sixty, the CES-D indicates the respondent's current level of psychological distress. A summary of the questions is located in Appendix A. Chronbach's alpha is 0.86, which shows good internal reliability of the scale. Confirmatory factor analysis indicates a three factor structure, similar to a previous Russian sample (Dershem, Patsiorkovski, & O'Brien 1996). The index is dichotomized using the recommended 16 or above score as the indicator of depressive symptoms.

Demographic variables include age, ethnicity, marital status, region, and rural or urban residence. Age is continuous, ranging from 15 to 49 for women and 15 to 59 for men. Ethnicity is divided into three categories—Uzbek, Russian, or other (primarily composed of other Central Asian ethnicities such as Kazakh and Kyrgyz). Respondents were either married or single, since cohabitation is extremely rare. Individuals who indicating living with a partner but not married were coded as married (less than 0.1 percent of the sample). Region is separated into four categories—east, west, east-central, and central.

Socioeconomic variables include education and employment status. Based on Soviet education categories, education levels include primary, secondary, and university. Employment status is a dichotomous variable, labeled working or not working at the time of survey.

Objective health is the sum of the number of chronic conditions reported by the respondent, both doctor- and self-diagnosed. Respondents reporting more than two conditions were included in the 2+ category.

Analyses

Descriptive statistics show the distribution of depressive symptoms of demographic, socioeconomic, and health variables. To assess determinants of depressive symptoms, logistic regression is employed with demographic and socioeconomic characteristics, as well as chronic conditions. Models were run separately for women and men because women, on average, tend to report more depressive symptoms (Nolen-Hoeksema 1987). For ease of interpretation and reporting, odds ratios are presented. Because of the complex sample design, all analyses take into account weights and clusters using Stata 9.0 (StataCorp 2005).

RESULTS

Descriptive information of the UHES for selected demographic, socioeconomic, and chronic conditions by gender is presented in Table 1. About one third of the sample is under twenty-five. Uzbek is the dominant reported ethnicity—about 85 percent for both men and women. Two thirds of men and women are married, and the other third is single About 60 percent of women and 50 percent of men report low education, while almost twice the amount of men have university educations compared to women. About 60 percent of women are not working compared to 40 percent of men. Women report more chronic conditions than men, as 35 percent of women and 26 percent of men report at least one chronic condition.

<center>Table 1 About Here</center>

Overall, 13.72 percent of women and 4.94 percent of men have CES-D scores high enough to indicate depressive symptoms (Table 2). Contrary to existing literature revealing a U-shaped relationship between age and depression (Mirowsky and Ross 1992; Turner, Lloyd and Roszell 1999), depression has a monotonic positive significant relationship with age for both men and women in the Uzbek sample—older individuals have higher rates of depressive symptoms.

Depressive symptoms do not vary widely by ethnicity for women, but Russian men report the highest depression scores of all ethnic groups. Additionally, women in the west and central regions have the highest levels of depressive symptoms—over 20 percent of the sub-sample in each region. An unexpected education-depressive symptom pattern is revealed for women— higher education is associated with higher levels of depressive symptoms. Although this relationship is less pronounced for men, the highest level of depressive symptoms is amongst the moderately educated group. Depressive symptoms vary little by employment status for either women or men. As expected, depressive symptoms increase with reported chronic conditions.

Table 2 About Here

Table 3 shows unadjusted and adjusted odds ratios for depressive symptoms. Adjustment is made for demographic, socioeconomic, and health variables. Age is a significant predictor of depressive symptoms in both unadjusted and adjusted models for women, but age lacks significance for men (an age-squared variable was tested due to the possibility of a curvilinear relationship, but it was not significant for either men or women).

Whereas ethnicity is not a significant predictor of symptoms for women, Russian men have almost 4 times (95% CI 1.93 to 7.85) the odds of depressive symptoms compared to Uzbek men after adjustment.

Women living in the east-central and east region, and who live in urban areas, have significantly lower odds of reporting depressive symptoms compared to other regions or rural areas. The west and central region do not significantly differ for the risk of depressive symptoms. The least risk for depressive symptoms amongst women is the eastern region, where women have 65 percent (95% CI 0.22 to 0.55) lower odds of depressive symptoms compared to the west. For men, living in the east-central region increases the risk of depressive symptoms by 36 percent (95% CI 1.49 to 5.64). There is no difference in risk for men living in rural compared to urban areas.

Table 3 About Here

Neither education nor occupation are significant predictors of depressive symptoms for women. For men, on the other hand, having a high education is protective of depressive symptoms—highly educated men have 59 percent (95% CI 0.22 to 0.78) lower odds for depressive symptoms. Additionally, men who reported working show a 40 percent (95% CI 0.37 to 0.97) lower risk for depressive symptoms.

Reporting at least one chronic physical condition is strongly associated with depressive symptoms. For the women, the odds of depressive symptoms increase over two-fold (95% CI 1.79 to 2.91) for women reporting 1 compared to 0 chronic conditions, and the odds increase four-fold (95% CI 2.84 to 5.06) for women reporting 2 or more. For men, the odds of depressive symptoms increase more dramatically with each reported chronic condition—men with 2 or more conditions have 8.74 (95% CI 4.12 to 18.52) greater odds of depressive symptoms compared to men reporting 0 conditions.

DISCUSSION

Major negative life events and traumatic experiences result in differential exposure to stress and subsequent increased depression among certain subgroups of the population (Pearlin et al. 1981; Turner and Lloyd 1995). Since the early 1990s in Uzbekistan, these events and experiences may stem from post-socialist economic and political transition periods. This study shows that some sub-groups in Uzbekistan show associations with depressive symptoms as found in previous literature, while other subgroups do not show equivalent patterns.

Consistent with other studies, women have higher levels of depressive symptoms across the vast majority of demographic, socioeconomic and health variables.

Age did not have the expected relationship with depression as found in some previous studies. Increasing age was found to be associated with higher average depression scores for both men and women. One possible explanation could be the adaptability to changing economic, political, and social atmosphere in Uzbekistan. Older adults may be less able to adapt to a changing society and economy, resulting in higher depression scores. Findings from Hungary support this hypothesis, as younger Hungarians reported similar amounts of depression in 1988 compared to 1995, but older Hungarians reported significantly higher depression scores during

this period. Loss of control in the workplace and decreased perceived social support account for much of the depression increase among older Hungarian adults (Kopp et al 2000).

Socioeconomic variables (education and employment status) were significantly related to the odds of depressive symptoms for men, but not for women. This may be because women, more so than men, are more universally affected by the post-socialist climate in Uzbekistan, and thus report similar levels of depression.

Russian men in Uzbekistan have a greater risk of depressive symptoms than men of other ethnicities, even after controlling for socioeconomic factors. This may be a function of economic devastation and ethnic tension in the region. When the Soviet economy collapsed, many high employment positions, often held by ethnic Russians, were lost due to company and government closings. Although the model did include employment status, this variable may not capture underemployment or activity in the informal economy. In addition, the attempt to revive Central Asian national identities through privileging titular ethnicities may threaten other ethnicities in the region, particularly Russians due to their higher status before the transition period.

Living in one of the most environmentally devastated regions in the world, Karakalpak women (located in the western region of Uzbekistan) may report more depression due to higher infant mortality rates and cancer. This may also explain the high depression rates of women in the Western and Central region of Uzbekistan, in which the cotton industry during the Soviet Era drained environmental resources, leaving the area with high levels of toxic chemicals (Feshbach and Friendly 1992).

FUTURE RESEARCH AND POLICY CONSIDERATIONS

Health care in Uzbekistan has been neglected, and government spending on health care continues to decrease. As indicated by stagnating life expectancy and high infant mortality rate,

health in Uzbekistan has not improved since independence in 1991. Because this is the initial investigation of mental health in Uzbekistan, future research should look further into the relationship of depression and sociodemographic and health factors. In particular, findings relating to the non-significance of socioeconomic variables and depressive symptoms warrant further investigation. Longitudinal data also would be helpful to investigate the change over time for depressive systems.

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TABLES

Table 1. Weighted Descriptive Statistics		
	Women (n=5,424)	**Men (n=2,321)**
	% of sample	% of sample
Age		
15-19	20.00	16.43
20-24	19.21	16.49
25-29	14.89	17.18
30-34	13.48	12.52
35-39	12.60	11.04
40-44	11.46	9.72
45-49	8.40	8.49
50-54	N/A	5.89
55-59	N/A	2.23
Ethnicity		
Uzbek	85.51	86.34
Russian	2.76	2.09
Other	11.73	11.57
Marital Status		
Married	68.13	68.67
Single	31.87	31.33
Region		
West	12.73	13.53
Central	23.94	21.98
East-Central	35.52	36.17
East	27.78	28.32
Urbanicity		
Urban	39.93	39.39
Rural	60.07	60.61
Education		
Primary	61.28	49.08
Secondary	28.18	35.28
University	10.58	15.64
Employment Status		
Working	40.38	59.58
Not Working	59.62	40.42
Number of Chronic Conditions		
0	64.92	73.82

1	22.23	20.52
2+	12.84	5.66

Table 2. Prevalence of Depressive Symptoms		
	Women	**Men**
	Prevalence of Depressive Symptoms (%)	Prevalence of Depressive Symptoms (%)
Overall	13.72	4.94
Age		
15-19	6.81	1.56
20-24	10.47	3.25
25-29	14.20	4.28
30-34	15.82	3.91
35-39	18.32	7.80
40-44	20.29	8.41
45-49	17.48	8.99
50-54	N/A	5.10
55-59	N/A	8.27
Ethnicity		
Uzbek	13.51	4.20
Russian	13.31	23.37
Other	15.31	7.13
Marital Status		
Married	13.59	5.48
Single	14.00	3.76
Region		
West	23.64	4.51
Central	25.53	1.33
East-Central	8.89	8.54
East	5.16	3.36
Urbanicity		
Urban	12.09	6.84
Rural	16.17	3.71
Education		
Primary	12.78	4.92
Secondary	15.05	5.53
University	15.66	3.67

Employment Status		
Working	15.17	4.04
Not Working	12.74	6.28
Number of Chronic Conditions		
0	7.89	2.67
1	19.63	7.75
2+	32.95	24.37

Source: 2002 Uzbekistan Health Examination Survey

Table 3. Unadjusted and Adjusted Odds Ratios for Depressive Symptoms with 95% Confidence Intervals

	Women				Men			
	Unadjusted		Adjusted		Unadjusted		Adjusted	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Demographic Characteristics								
Age	1.04	(1.03 to 1.05)	1.04	(1.03 to 1.05)	1.04	(1.02 to 1.06)	1.03	(1.00 to 1.06)
Ethnicity								
Uzbek (ref)	1.00		1.00		1.00		1.00	
Russian	0.98	(0.56 to 1.73)	0.71	(0.39 to 1.29)	6.95	(3.56 to 13.57)	3.90	(1.93 to 7.85)
Other	1.16	(0.81 to 1.65)	0.73	(0.50 to 1.07)	1.74	(0.87 to 3.46)	1.43	(0.71 to 2.87)
Marital Status								
Married (ref)	1.00		1.00		1.00		1.00	
Single	1.04	(0.84 to 1.28)	1.68	(1.32 to 2.14)	0.67	(0.44 to 1.04)	0.85	(0.39 to 1.86)
Region of Residence								
West (ref)	1.00		1.00		1.00		1.00	
Central	1.11	(0.79 to 1.55)	1.81	(1.24 to 2.64)	0.29	(0.08 to 0.99)	0.54	(0.14 to 2.18)
East-Central	0.32	(0.21 to 0.46)	0.54	(0.35 to 0.83)	1.98	(1.09 to 3.57)	2.90	(1.49 to 5.64)
East	0.18	(0.11 to 0.27)	0.35	(0.22 to 0.55)	0.73	(0.33 to 1.63)	1.36	(0.54 to 3.44)
Urbanicity								
Urban (ref)	1.00		1.00		1.00		1.00	
Rural	1.40	(0.99 to 1.99)	1.41	(1.11 to 1.78)	0.52	(0.30 to 0.92)	0.65	(0.35 to 1.12)
Socioeconomic Characteristics								
Education								
Primary (ref)	1.00		1.00		1.00		1.00	
Secondary	1.21	(0.94 to 1.55)	1.03	(0.82 to 1.30)	1.13	(0.67 to 1.92)	0.90	(0.54 to 1.48)
University	1.27	(0.88 to 1.82)	0.94	(0.68 to 1.29)	0.74	(0.43 to 1.27)	0.41	(0.22 to 0.78)
Occupation								
Not Working (ref)	1.00		1.00		1.00		1.00	
Working	0.82	(0.68 to 0.99)	0.97	(0.79 to 1.19)	0.63	(0.40 to 0.98)	0.60	(0.37 to 0.97)

Objective Health							
Chronic Conditions (total number)							
0 (ref)	1.00		1.00		1.00		1.00	
1	2.85	(2.20 to 3.69)	2.28	(1.79 to 2.91)	3.06	(1.66 to 5.64)	2.81	(1.48 to 5.33)
2+	5.74	(4.42 to 7.44)	3.79	(2.84 to 5.06)	11.74	(5.98 to 23.06)	8.74	(4.12 to 18.52)

Source: 2002 Uzbekistan Health Examination Survey
Notes: Adjusted odds ratios are adjusted for all other demographic, socioeconomic, and objective health characteristics.
Ref=reference category.

Appendix A.

Center for Epidemiologic Studies Depression Scale Questions

(1) I was bothered by things that don't usually bother me
(2) I did not feel like eating; my appetite was poor
(3) I felt that I could not shake the blues
(4) I felt that I was just as good as other people
(5) I had trouble keeping my mind on what I was doing
(6) I felt depressed
(7) I felt everything I did was an effort
(8) I felt hopeful about the future
(9) I thought my life had been a failure
(10) I felt fearful
(11) My sleep was restless
(12) I was happy
(13) I talked less than usual
(14) I felt lonely
(15) People were unfriendly
(16) I enjoyed life
(17) I had crying spells
(18) I felt sad
(19) I felt that people disliked me
(20) I could not get going

Source: Radloff 1977.