

**Women's Union Status and Mental Health in Mexico**  
Kammi Schmeer\* & Rhiannon A. Kroeger

DRAFT paper

Submitted for Population Association of America Annual Meeting  
September 22, 2008

\*Corresponding author: Kammi Schmeer, Assistant Professor, Department of Sociology, The Ohio State University, 238 Towshend Hall, 1885 Neil Avenue Mall, Columbus, OH 43210-1222. Tel: 614-247-8110. Fax: 614-292-6687. Email: [schmeer.1@sociology.osu.edu](mailto:schmeer.1@sociology.osu.edu).

## **Abstract**

Mental illness is increasingly recognized as a major threat to well-being, particularly among women, around the world. At the same time, demographic and social changes are altering the way families are formed with potential implications for women's mental health as they are increasingly faced with the prospect of cohabitation, union dissolution, widowhood and never marrying. Although changes in union formation and dissolution and the effects on women's health have been explored in the U.S., we know little about these relationships in developing country contexts. To begin to fill this gap in research, our study investigates how union status affects depression among women in Mexico, where marriage rates remain high but nonmarital unions, divorce and single-female headed households are on the rise. We contribute to the literature on how marriage affects women's health by disaggregating union status into marital versus consensual unions and first versus higher order unions. Our results suggest that in the context of Mexico, both marital and consensual unions reduce the risk of depression compared with being divorced/separated or single. However, this health benefit only holds for first unions and there is a large mental health penalty for Mexican women living in second or higher order unions.

## **Introduction**

Unprecedented increases in union instability, cohabitation, non-marital fertility, divorce, and female-headed households have increased the diversity in union status and transitions for women around the world. This has raised questions about how different union states may affect individuals' lives. Existing empirical evidence supports the contention that married people enjoy better mental and physical health than the unmarried, even after controlling for selection processes (Waite and Gallagher 2000). However, these effects may differ for individuals in different social groups, with particular disadvantages for members of marginalized socioeconomic groups (Lichter, Graefe and Brown 2003; Williams, Takeuchi and Adair 1992; Williams and Umberson 2004). There is also some new evidence that, in addition to current union status, marital transitions and change are important for health (Williams and Umberson 2004; Zhang 2006).

One group that may be particularly disadvantaged by union status and transitions is women in developing countries. In these contexts women tend to have lower social status, income earnings, and more parenting responsibilities than men (CONAPO 2000; Filgueria and Peri 2004) and compared with their counterparts in developed countries. A recent study suggests that across developing country settings women have worse mental health than men (Das et al. 2007). Given changes in fertility and marriage patterns in recent years, more research is needed to explore how union status and transitions may affect women's health in contemporary developing country settings. We contribute to this literature by investigating how women's union status affects their mental health (depression) in Mexico.

To contribute to our understanding of how union status may affect women's mental health, this paper explores the effects of different types of unions on women's depressive symptoms using nationally representative longitudinal data from Mexico. In Mexico, as in many developing countries, marriage is less selective than in the U.S. and consensual unions (traditional alternatives to formal marriage) are relatively common and provide an important comparison group to those formally married. Recent trends in Mexico also suggest that demographic and family changes have resulted in increasing divorce and separation rates, requiring an exploration into the consequences of both union dissolution and re-marriage for women's well-being. In this paper we consider a broad array of union status categories, including distinguishing between formal marriage and more informal consensual unions to assess whether formal marriage has distinct advantages (or disadvantages) for women's mental health. Another contribution of this paper is to compare the effects of first unions (formal marriage and consensual unions) to higher order unions on women's mental health to determine if second and higher order marriages may be qualitatively distinct from first unions, and whether any mental health benefits

of unions may be limited to first marriages. We also consider how divorce, separation, widowhood, and being never married affect Mexican women's mental health, compared to being in any union, marriage versus consensual unions, and first versus higher order unions.

Research has not given sufficient attention to how re-marriage and nonmarital transitions (e.g. into and out of cohabitation) may affect well-being, particularly in developing countries. In distinguishing among first and second marriages and first and second consensual unions, we aim to provide a more specific consideration of marriage effects. Given the limited research in this area, it is hoped the results will contribute to our understanding of how union status affects women's mental health in developing country settings, and provide a more nuanced consideration of the effects of union status on women's mental health.

Addressing these research questions in Mexico not only provides important insight into women's health in a developing country context, but informs the larger body of marriage literature by determining whether the relationships between union status and mental health are unique to the U.S. and developed country settings, or are more universal processes. Further, given that Mexican women influence U.S. demographic and social structures through fertility (Mexican-origin women have the highest fertility rate in the U.S.) and migration, understanding the effects of union status and transitions on Mexican women's well-being is also relevant for U.S. family and health research.

## **Background**

### *Mental Health*

Mental health is increasingly being recognized as an important indicator of health, and it is estimated that 14% of the global burden of disease can be attributed to mental health disorders, with depression as the main mental health problem worldwide (Prince et al. 2007). It is estimated that 154 million people worldwide suffer from depression, and that by 2020 depression will become the second leading cause of disease around the world (World Health Organization 2000). Further, women are almost twice as likely as men to suffer from depression (World Health Organization 2000). A review of the literature suggests that mental health is associated with multiple physical health problems (including higher mortality rates), and these physical problems can extend into the next generation by increasing the prevalence of low birth weight and reducing effective care of children (Prince et al. 2007). Thus, although understanding the determinants of women's mental health is important in and of itself, it also provides insight into the potential risks to infant and child health, as these women become pregnant, give birth, and care for their children.

Given the seriousness of mental illness worldwide, particularly among women, it is important to understand what sociodemographic factors are associated with mental illness. This is especially true in undeveloped countries, where poverty is a major contributing cause and few resources are available to treat problems (Das et al. 2007; Kessler et al. 2005; Patel and Kleinman 2003; World Health Organization 2007). Although there are few country-specific statistics, the World Health Organization suggests that the burden is high in Latin America: depression is the leading cause of disease burden in Brazil and the second leading cause among women in Chile. Women in developing countries may be at particularly high risk for mental health problems due to their lack of social and economic power relative to men, their increased chance of experience poverty and violence, and their role as primary care givers under difficult conditions (World Health Organization 2000). However, we know little about how family contexts, and union status in particular, affect women's mental health in developing country contexts. Thus below we begin with a review of U.S. and developed country research to provide a foundation for considering how union status may affect women's risk of mental health problems, followed by what we know about the Mexican context.

### *Union Status and Mental Health*

Research in the United States on union type and mental health generally finds that married individuals experience greater levels of psychological well-being and mental health compared to the unmarried (Ross, Mirowsky and Goldsteen 1990; Umberson and Williams 1999). This marital advantage is thought to be related to the social control that marriage exerts over individuals (Duncan, Wilkerson and England 2006; Umberson 1987), the social integration and support that marriage provides (Pearlin and Johnson 1977; Waite 1995), and the economic resources associated with marriage (Waite 1995).

In addition, US scholars have found that cohabiters appear to experience some, but not all, of the psychological benefits of marriage in part because cohabitation is associated with greater relationship instability and lower levels of intimacy and commitment than marriage (Brown 2000). However, most research finds that cohabiters are less depressed (Ross 1995) and have greater levels of subjective well-being (Kamp Dush and Amato 2005) than their single noncohabiting counterparts.

Research on union transitions and mental health generally finds that marital and cohabitation dissolution lead to decreases in mental health (Wade and Pevalin 2004; Willitts, Benzeval and Stansfeld 2004; Wu and Hart 2002). Some evidence suggests that this mental health decrease partially reverses when individuals remarry or repartner (Willitts et al. 2004). Though early research highlighted many gender differences in the effect of union status and union transitions on mental health (see Williams 2003 for a review), recent research suggests that within the US, the effect of marital status and marital transitions on mental health are similar for men and women (Strohschein et al. 2005; Williams 2003). However, the negative effects of union dissolution on mental health are longer lasting for women than for men (Willitts et al. 2004).

Developing country research on union status and mental health is sparse, but the results are similar to those found in developed country contexts. Existing research suggest that in developing countries married individuals are less depressed than their unmarried counterparts (Andrade et al. 2002; Gorn, Sainz and Icaza 2005; Weissman et al. 1996), that women are at more risk for mental health problems than men (Das et al. 2007), and that widowhood may be particularly harmful to mental health (Das et al. 2007).

The benefits of marriage for mental health, however, may be due in part to unobserved differences among individuals. One recent study suggested that, even controlling for pre-marital depression, both depressed and non-depressed women benefited psychologically from marriage (although the effect was stronger for previously depressed women) (Frech and Williams 2007). There is also evidence from a twins study that controlling for childhood environment and genetic selection being divorced or widowed increased the risk of depression among Danish women (Osler et al. 2008). This suggests that the relationship between certain union states and depression among women is not due to selection factors, and that the continued investigation into how different union states across social contexts affect women's mental health is warranted.

### *Union Status and Mental Health in Mexico*

Mexico is a middle income country with large income inequalities that resulted in almost 50% of individuals living in poverty and 20% living in extreme poverty in 2002 (World Bank 2005). Similar to the rest of Latin American, marriage is a culturally important tradition that has remained the main context in which to bear and raise children; however, there are signs of considerable family structure change taking place (Lopez 2004). Over the last 25 years there have been profound demographic transitions in Mexico that have changed the organization of family life (Garcia and Rojas 2001); including: dramatic decreases in fertility from a TFR of 6.0 in 1976 to a TFR of 2.5 in 2003, an increase at age at first union, and increases in the prevalence in consensual unions (Amador 2004; CONAPO 2005; Quilodran 2004; Solis 2004). Consensual unions are a traditionally stable form of partnership common in Latin America and they have been generally assumed to be comparable to marriage (Martin 2002). However, this may

be changing as family and marital norms evolve and some consensual unions become more transient, less stable partnerships (Parrado and Tienda 1997; Solis 2004). The proportion of women who are separated or divorced has increased slowly but systematically throughout the 20<sup>th</sup> century (particularly among young women and more recent generations). The number of households headed by women increased from 1 in 8 in 1976 to 1 in 5 in 2000 (CONAPO 2003). The most recent statistics show that family structure continues to change in Mexico: crude marriage rates decreased from 6.1 in 2002 to 5.6 in 2006 (United Nations 2006b) and crude divorce rates rose from .6 in 2002 to .7 in 2006 (United Nations 2006a).

Yet aside from the outlines of these general patterns, very little is known regarding how union status is related to the health and well-being of women in Mexico. One recent study of women living in low-income urban areas in Mexico finds that those who are married are less depressed than those who are unmarried (includes divorced, separated, widowed and single women) (Gorn et al. 2005). Research also suggests that consensual unions, although similar to marriage in their stability in Latin America, may provide less economic and social security for women than formal marriage with the potential to decrease their emotional health (Martin 2002). In addition to the evidence that married individuals are less depressed than their non married counterparts, there is also evidence that widowed women in Mexico have higher levels of depression (Das et al. 2007). Regarding union transitions, we found no literature that directly examines union transitions and mental health in Mexico. However, one study finds that Mexican immigrant women in the US who are separated or divorced are more depressed than their married counterparts (Vega, Bohdan and Valle 1986). These studies provide a foundation for consider how union status might affect women's depression in Mexico. However, no study to date has examined whether formal marriage, consensual unions, and higher order marital or consensual unions have similar effects on women's mental health.

Because US literature finds that the benefits of marriage on mental health vary by many sociodemographic factors (Williams and Umberson 2004; Williams, Takeuchi and Adair 1992; Lichter, Graefe and Brown 2003), and because women in Mexico are often marginalized in terms of social status, income, and parenting roles, it is of utmost importance to fully explore the effect of union status and union transitions on mental health among women in Mexico. In addition, it is important to see how these relationships vary by sociodemographic factors such as SES, ethnicity, and geographic location.

## **Data & Sample**

We draw our data from the Mexican Family Life Survey (MxFLS), a nationally representative longitudinal dataset of 8,440 households in 150 communities. The first wave was collected in 2002 and a second wave, collected in 2005m followed the baseline households with a 90% retention rate (Parker, Rubalcava and Teruel 2008). The stated goal of the MxFLS is to "better understand the social, economic, demographic and health transitions happening in Mexico" (Rubalcava and Graciela 2006). The 2002 MxFLS includes complete marriage and union histories of adult females between the ages of 15 and 49, as well as a full series of questions related to current mental health status for household members 15 years and older. The 2005 dataset includes follow up questions about change in union status and measures current mental health. In this paper, we take advantage of both the union histories and longitudinal structure of the data to model the relationship between union status and mental health among Mexican women.

Our baseline sample consists of 8200 women between the ages of 15 and 49 who have valid mental health data on the 12 questions of interest (described below). Just over 100 women are missing union status information in 2002, resulting in a sample of 8094 women with both valid mental health and union status information in 2002. Table 1 below presents some basic characteristics of the sample. The average age of this sample is 30, and almost 70% of the women have children. The sample average number of children ever born is 2.26 (including those with no children), while the average among

women with children is 3.30. Clearly, this is a sample of women who are relatively disadvantaged, compared to U.S. standards, with only 9% of the sample has greater than a high school education, and the sample households, on average, own 5 assets (this includes all types of assets owned by the household—appliances, livestock, vehicles, etc.). 36% of the sample women worked during the past 12 months, and 4% of the sample lives in a rural area with less than 2500 inhabitants. Eleven percent of the sample reports membership in an indigenous group. Finally, on average, respondents live in households with greater than 4 individuals under 18 and 3 individuals 18 or older in the household.

Insert Table 1 here.

## **Methods**

### *Variables*

Our measure of mental health measures the extent of depressive symptoms experienced by women, and is composed from 12 questions that asked how often in the last four weeks the women had: been sad, cried, slept poorly, lacked concentration, been nervous, been pessimistic, been irritable, felt useless, been afraid, lost interest in everyday activities, felt lonely, or thought of death. These questions are culturally appropriate for Mexico at the same time as being comparable to those found in the CES-D (Center for Epidemiologic Studies Depression Scale). A woman was given 1 for each measure where she reported some occurrence of the symptom. As Table 2 shows, a sizeable portion of the sample women reported each of these symptoms. The fewest reported they had lost interest in everyday activities (17%) or thought of death (13%). The vast majority, 80%, experienced at least one or more of these depressive symptoms (see Table 2).

Insert Table 2 here.

We then summed the number of depressive symptoms for each respondent, and then labeled those with 0 depressive symptoms as having no depression, those with 1 to 6 symptoms as having moderate depression, and those with 7 to 12 symptoms as having severe depression. Nearly 21% of our sample had no depression, while 53.47% experienced moderate depression, and almost 26% experienced severe depression according to our definition (see Figure 1).

Insert Figure 1 here.

Union status is measured with dichotomous indicators for being in any union, divorced or separated, widowed and single (never been in a union). We then further differentiate union status by whether the woman was formally married or in a consensual union (stable cohabiting union common in Latin America). In addition to differentiating between marital and consensual unions, we use the respondents' union histories to assess whether they were in a first or second union. The few women in their third or higher union were collapsed into the second union category due to their small numbers. Table 1 shows that almost half of our sample is married and in their first union, while another 32% of the women are single (never been in a married or consensual union). Almost 9% are in their first consensual union, whereas about 5% of the sample is in their second union either through formal marriage (1.61%) or an informal consensual union (3.03%). Almost 6% of our sample is divorced or separated, and just over 1% is widowed (see Table 1).

In conducting the regression analyses (discussed below), we control for variables that are potentially related to both mental health and union status. In each model we control for the following variables: total number of children ever born, whether the respondent is currently pregnant, respondent age, whether the respondent has worked in the last 12 months, respondent education (categories are less than primary, primary, secondary/high school, and greater than high school), respondent ethnicity

(self reporting of being part of an indigenous group), the number of adults 18 or older in the household, the number of children under 18 in the household, and the type of area the respondent lives in (rural areas of 2500 individuals or less versus non-rural areas of more than 2500 people). To control for economic status, which likely has an important influence on both women’s mental health and union status, we use principal component analysis to integrate multiple measures of household assets, housing quality, water availability, and type of sanitation into three wealth scores for each household. This method has been shown to be an efficient way to control for economic status in developing country households, allowing one to capture multiple and correlated aspects of household wealth (Filmer and Pritchett 2001). Although many wealth components are generated, we chose the top three scores (all with eigenvalues > 1), labeled as “wealth 1,” “wealth 2,” and “wealth 3”.

### *Statistical Methods*

In our analysis we use multinomial logistic regression to examine the effect of union status on the likelihood of having moderate or severe depression compared to no depression. Multinomial logistic regression equations consist of a series of binary logistic equations. In any given multinomial regression model, one category of the multinomial variable (e.g. in our case, “no depression”) is the reference category. The probability that each other category exists relative to the reference category is tested with one equation per category that must be compared to the reference (Long 1997). For example, in our analysis our dependent variable has three categories. Therefore, in the below set of equations we set the probability of  $\beta_1$  to 0, and then calculate the probability that moderate depression or severe depression exists relative to no depression:

$$\begin{aligned}
 P(y=\text{no depression}) &= 1/(1+\exp(\beta_2*x)+\exp(\beta_3*x)) \\
 P(y=\text{moderate depression}) &= \exp(\beta_2*x)/(1+\exp(\beta_2*x)+\exp(\beta_3*x)) \\
 P(y=\text{severe depression}) &= \exp(\beta_3*x)/(1+\exp(\beta_2*x)+\exp(\beta_3*x))
 \end{aligned}$$

It should be noted that multinomial logistic regression is used to examine nominal dependent variables with three or more categories. Since our dependent variable categories are ordered, we tested ordered logit models. The results were consistent with the multinomial models. We found the multinomial models to be more informative, since we are most interested whether union status is associated with women’s risk of being in the moderate or severe category compared with the no symptom category.

In order to interpret our results in a meaningful way, we will report the exponentiated coefficients, or relative risk ratios. These ratios represent the risk of being in a given category (moderate or severe depressive symptoms) compared to the risk of being in the reference category (no depressive symptoms). Ratios above 1 indicate a positive relationship, or increased risk of depressive symptoms, while ratios below 1 indicate a negative relationship or decrease in the risk of having depressive symptoms. We evaluate statistical significance at  $p < .05$ , but report  $p < .1$  in the tables. Finally, in each of our models we report adjusted standard errors, clustered on state. Clustering the standard errors at the state level adjust for clustering of the respondents at lower levels (e.g., within communities, and within households) as well, and will allow for valid significance testing (Angeles, Guilkey and Mroz 2005).

### **Results**

Table 3 provides the results from the first set of analyses that considers the association between union status (in any union, divorced or separate, widowed or single) and depressive symptoms in 2002. The relative risk ratios in the two columns for Model 1 indicate that divorced/separated and single women have a higher relative risk of depression than those who are in any union (the reference category). Being divorced/separated increases the risk of severe depression by 85% (column 2), but does not seem to increase the relative risk of moderate depression compared to no depression (column 1).

Being single, compared to in any union, increases the risk of moderate depression by 42% and severe depression by 50%. Being widowed has similar sized relative risk ratios for severe depression as being single, but it is not statistically significant, perhaps due to the small number of widows in this sample. Models 2-4 further show that there are no statistical differences in depression among women in the non-union categories (i.e., divorce, widowhood and single are not statistically different in terms of the relative risk of being moderately or severely depressed compared with not depressed). The final model, Model 5, disaggregates the union status variable by distinguishing those women who are in a marriage from those who are part of a consensual union. The lack of statistical significance and risk ratios close to 1 suggest little difference in depressive symptoms for those women who are in less formal compared with formal marital unions.

The control variables indicate that number of children and being currently pregnant are associated with increased risk of both moderate and severe depression (see Table 3). The third wealth index score and number of adults in the household indicated that having more wealth and more adults in the household reduces the risk of being depressed (particularly severe depression). This is consistent with the idea that lack of economic and social resources contribute to women's mental health problems. Including these controls also enables us to estimate the union status effects holding these other aspects of the household constant. Thus, the benefits of being in a union are net of wealth, the presence of other adults in the household, and the number of children one has (as well as all of the other controls included in the models).

Insert Table 3 here.

Table 4 provides the results with union status disaggregated by whether it is a first or higher order union, and then further into whether the union is a first or second marriage, or a first or second consensual union. Models 1 and 2 compare the effects of being in either a first union or a second or higher order union to the other marital status categories. The relative risk of being severely depressed is two times the likelihood of not being depressed if a woman is in her second or higher union compared to being in her first union (column 1, Table 4). Further, being divorced/separated and single are still more detrimental to mental health when compared to women in their first union. However, when compared to women in their second or higher order union (Model 2, Table 4), on average, women who are divorced, separated or single are no worse off. These results suggest that the benefits of being in a union for mental health only accrue to those in their first union, and that the lasting effects of dissolving a first union or the qualities of the second union contribute to higher risk for depression among Mexican women.

Insert Table 4 here.

Models 3-6 in Table 4 further differentiate among unions by both number and type. The results illustrate that the highest relative risks of moderate and severe depression are among women in their second or higher order marriage compared with those in either their first marriage (RRR = 1.88 for moderate depression and 2.72 for severe depression) or first consensual union (RRR = 2.00 for moderate depression and 2.67 for severe depression). Being in a second consensual union is also a health risk, but the relative risk ratios are slightly smaller (RRR = 1.81 compared to first marriages and 1.77 compared to first consensual unions) and the relative risk ratio is only significant for severe depression (see Table 4).

It should be noted that some interaction effects were tested to determine if these results are consistent across sub groups of women; such as: rural versus urban; educated versus uneducated; and large family size versus smaller family size. The models are not shown here for brevity, but the results suggest that the disadvantage of a second union is uniform across all of these subgroups of women.



Significant interactions illustrated a few differences in the effects of the other union status categories. Being single is more detrimental to rural than urban women's mental health (increasing the risk of moderate but not severe depression), while divorced/separated women with more children are more likely to be severely depressed than those with fewer children. There are no significant differences in the effects of union status on depression for indigenous compared with non-indigenous women, between those above and below 5 household assets, nor between educated and uneducated women. Thus, the effects presented in Tables 3 and 4 seem quite universal, and hold across key subgroups of Mexican women.

## **Discussion**

Marriage has been promoted in the U.S. and elsewhere as a key to improving individual and child well-being. However, it is not clear from existing research whether all marriage is beneficial for all people. Research suggests that women may benefit less from marriage, and those in socially disadvantaged groups may not benefit at all. However, we know little about marriage in developing countries and its effects on the health of women, a socially and economically vulnerable group.

Marriage continues to be an important social institution through much of the developing world; however, in Latin America and other developing areas, traditional consensual unions provide a stable alternative to marriage. Further, increasing divorce and union dissolution rates around the world mean more women are left separated from their spouses or become part of a second union. Little research has explored whether women in developing country contexts benefit from marriage, whether there are differences between formal and informal unions for their health, and how they fare in second or higher order unions. Given women's lower social status and earning potential in developing countries, they may benefit from marriage while at the same time being vulnerable to marital transitions, with potentially serious consequences for their own and their children's health.

To begin to fill this gap in the literature this paper explored the effects of union status on women's mental health in Mexico. Poor mental health is has begun to be recognized around the world as a serious public health problem. Women, in particular, suffer more mental health problems than men. Using nationally-representative data from Mexico, we used prospective and retrospective data on women's marital status to assess whether their current marital status affected their risk of being moderately or severely depressed (compared with not depressed). We compared women's depressive symptoms when they were in any union compared with being divorced/separated, widowed and single, and then further explored the relative mental health risk of women in consensual compared with marital unions and first compared with higher order unions.

The results suggested an important benefit to Mexican women of being in any union (marital or consensual) compared with being divorced/separated or single. Women's risk of being depressed did not differ significantly between those formally married and those in consensual unions, indicating that these two types of unions are similar in their protective qualities for women in Mexico. However, further exploration revealed that not all unions are beneficial for women. Second or higher order unions, and in particular second marriages, were associated with higher risks of depression than first order unions. These higher order unions were similar to being divorced, separated, widowed, or single for the risk of being moderately or severely depressed. The main findings from this paper are that being in any first union is beneficial for Mexican women, but that transitioning out of that union to being either divorced/separated or into a second union is harmful to women's mental health. These effects are robust to the inclusion of social and economic control variables, as well as interaction effects. The negative effect of being in a second union is particularly consistent across subgroups of women.

The main limitation of this study is our inability to address the selectivity issue, or whether women in higher order unions are different from women in first unions. It may be that these unobserved differences, and not women's marital status, is causing their higher risk for depression. We

also cannot determine whether union status affects depression, or whether depression is affected women's marital status. This is particularly a concern with evaluating the increased risk of depression among single women compared with those in a union, since mental health has been shown to be a barrier to entering a union among unmarried mothers (Teitler and Reichman 2008). Thus, these results suggest an association rather than causal relationship between women's union status and depression in Mexico.

In finalizing this paper, we plan to utilize the second wave of the data to consider prospective union formation and dissolution among these women and any concurrent changes in their depressive symptoms. It will also provide some view of the role of stability and change in union status on mental health. If enough change has occurred we will consider developing change (fixed effects) models to rid the models of potential bias caused by unobserved differences among the women.

## Tables & Figures

**Table 1:** Sample descriptive statistics of Mexican women aged 15-49, MxFLS 2002 (N= 8094)

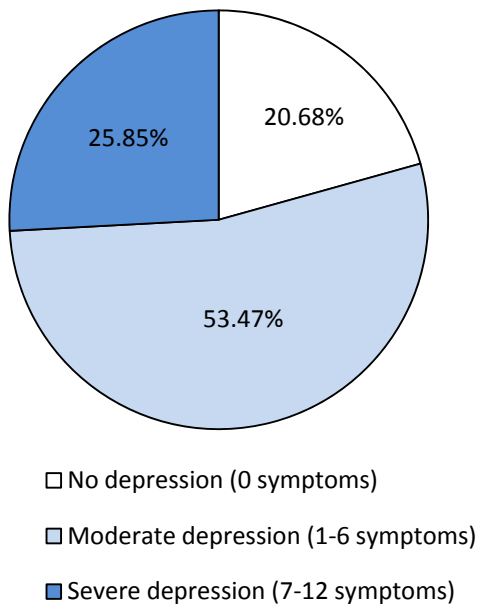
Variable	Mean
<i>Union Status</i>	
Any union	60.65
1 <sup>st</sup> marriage	47.12
2 <sup>nd</sup> marriage	1.61
1 <sup>st</sup> consensual union	8.89
2 <sup>nd</sup> consensual union	3.03
Divorced/Separated	5.96
Widowed	1.26
Single- never in union	32.12
Total children ever born	2.26 (2.29)
Currently pregnant	0.04
Age	29.89 (9.91)
Worked in last 12 months	0.36
Education-	
Less than Primary Education	0.05
Primary Education	0.37
Secondary/HS Education	0.51
Greater than HS Education	0.09
Number of household assets owned	5.22 (1.78)
Member of Indigenous group	0.11
Number less than 18 in HH	4.66 (2.59)
Number adults in HH	3.28 (1.94)
Lives in rural area	0.41

Standard deviations in parentheses.

**Table 2:** Depressive symptoms among Mexican women aged 15-49, MxFLS 2002

Variable	Mean
In the last 4 weeks have...	
Been sad	0.48
Cried	0.49
Slept poorly	0.42
Lacked concentration	0.30
Been nervous	0.45
Been pessimistic	0.32
Been irritable	0.40
Felt useless	0.22
Been afraid	0.34
Lost interest	0.17
Felt lonely	0.33
Thought of death	0.13
Any symptoms	0.79

**Figure 1:** Depression of Mexican women by categories



**Table 3:** Relative risk of being moderately or severely depressed compared with not depressed by union status Mexican women aged 15-49 in 2002. N= 8000

	(1)		(2)		(3)		(4)		(5)	
	Mod. dep.	Sev. dep.	Mod. dep.	Sev. dep.	Mod. dep.	Sev. dep.	Mod. dep.	Sev. dep.	Mod. dep.	Sev. dep.
<b>Union Status</b>										
In any union	REF		0.89 (0.13)	0.54*** (0.061)	0.84 (0.27)	0.64 (0.18)	0.70*** (0.048)	0.67*** (0.084)		--
Married	--		--		--		--			REF
Consensual union	--		--		--		--		0.93 (0.081)	1.17 (0.13)
Divorced/sep.	1.12 (0.16)	1.85*** (0.21)		REF	0.94 (0.32)	1.18 (0.36)	0.79* (0.11)	1.23* (0.15)	1.11 (0.16)	1.92*** (0.22)
Widowed	1.19 (0.39)	1.57 (0.45)	1.06 (0.36)	0.85 (0.26)		REF	0.84 (0.27)	1.04 (0.35)	1.18 (0.38)	1.62 (0.47)
Single	1.42*** (0.096)	1.50*** (0.19)	1.27* (0.17)	0.81* (0.098)	1.19 (0.39)	0.96 (0.32)		REF	1.39*** (0.090)	1.57*** (0.19)
<b>Controls</b>										
# kids ever born	1.07*** (0.027)	1.17*** (0.036)	1.07*** (0.027)	1.17*** (0.036)	1.07*** (0.027)	1.17*** (0.036)	1.07*** (0.027)	1.17*** (0.036)	1.07*** (0.027)	1.17*** (0.036)
Pregnant	1.88*** (0.31)	1.62*** (0.30)	1.88*** (0.31)	1.62*** (0.30)	1.88*** (0.31)	1.62*** (0.30)	1.88*** (0.31)	1.62*** (0.30)	1.89*** (0.31)	1.62*** (0.29)
Age	1.00 (0.0050)	0.99 (0.0060)	1.00 (0.0050)	0.99 (0.0060)	1.00 (0.0050)	0.99 (0.0060)	1.00 (0.0050)	0.99 (0.0060)	0.99 (0.0051)	0.99 (0.0061)
Working	1.11 (0.092)	1.07 (0.12)	1.11 (0.092)	1.07 (0.12)	1.11 (0.092)	1.07 (0.12)	1.11 (0.092)	1.07 (0.12)	1.11 (0.091)	1.06 (0.11)
No educ+	1.07 (0.20)	1.46* (0.30)	1.07 (0.20)	1.46* (0.30)	1.07 (0.20)	1.46* (0.30)	1.07 (0.20)	1.46* (0.30)	1.07 (0.20)	1.45* (0.29)
Prim. school+	1.02 (0.057)	1.05 (0.14)	1.02 (0.057)	1.05 (0.14)	1.02 (0.057)	1.05 (0.14)	1.02 (0.057)	1.05 (0.14)	1.02 (0.058)	1.05 (0.14)
>sec. school+	1.04	0.71* (0.14)	1.04	0.71* (0.14)	1.04	0.71* (0.14)	1.04	0.71* (0.14)	1.04	0.71* (0.14)

	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)
Indigenous	0.91	0.99	0.91	0.99	0.91	0.99	0.91	0.99	0.91	0.99
	(0.093)	(0.15)	(0.093)	(0.15)	(0.093)	(0.15)	(0.093)	(0.15)	(0.093)	(0.15)
# <18 in HH	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02
	(0.017)	(0.016)	(0.017)	(0.016)	(0.017)	(0.016)	(0.017)	(0.016)	(0.017)	(0.016)
# adults in HH	0.96***	0.91***	0.96***	0.91***	0.96***	0.91***	0.96***	0.91***	0.96**	0.91***
	(0.014)	(0.021)	(0.014)	(0.021)	(0.014)	(0.021)	(0.014)	(0.021)	(0.014)	(0.021)
Wealth 1	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.01
	(0.026)	(0.038)	(0.026)	(0.038)	(0.026)	(0.038)	(0.026)	(0.038)	(0.025)	(0.038)
Wealth 2	1.05*	1.03	1.05*	1.03	1.05*	1.03	1.05*	1.03	1.05*	1.03
	(0.028)	(0.051)	(0.028)	(0.051)	(0.028)	(0.051)	(0.028)	(0.051)	(0.028)	(0.051)
Wealth 3	0.96	0.94**	0.96	0.94**	0.96	0.94**	0.96	0.94**	0.96	0.94**
	(0.027)	(0.029)	(0.027)	(0.029)	(0.027)	(0.029)	(0.027)	(0.029)	(0.027)	(0.029)
Rural++	0.90	0.87	0.90	0.87	0.90	0.87	0.90	0.87	0.90	0.87
	(0.073)	(0.094)	(0.073)	(0.094)	(0.073)	(0.094)	(0.073)	(0.094)	(0.072)	(0.093)
Constant	2.56***	1.25	2.88***	2.31***	3.05***	1.96*	3.64***	1.88***	2.64***	1.17
	(0.45)	(0.26)	(0.74)	(0.61)	(1.11)	(0.75)	(0.75)	(0.43)	(0.47)	(0.24)
Log likelihood	-7986	-7986	-7986	-7986	-7986	-7986	-7986	-7986	-7982	-7982

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

+Reference: Some secondary school, including high school graduates. ++Reference: large or small urban area.

**Table 4:** Relative risk of being moderately or severely depressed compared with not depressed by union status—first versus higher order unions Mexican women aged 15-49 in 2002. N= 8000

	(1)		(2)		(3)		(4)		(5)		(6)	
	Mod. dep.	Sev. Dep.	Mod. dep.	Sev. Dep.	Mod. dep.	Sev. Dep.	Mod. dep.	Sev. Dep.	Mod. dep.	Sev. Dep.	Mod. dep.	Sev. Dep.
<b>Union Status</b>												
1st union		REF	0.83 (0.15)	0.49*** (0.091)	--	--	--	--	--	--	--	--
2nd union	1.20 (0.22)	2.03*** (0.37)		REF	--	--	--	--	--	--	--	--
1st marriage	--	--	--	--	REF	0.53** (0.14)	0.37*** (0.095)	1.06 (0.12)	0.98 (0.15)	1.04 (0.23)	0.55*** (0.11)	
2nd marriage	--	--	--	--	1.88** (0.51)	2.72*** (0.70)	REF	2.00** (0.55)	2.67*** (0.90)	1.96* (0.67)	1.51 (0.47)	
1st consensual union	--	--	--	--	0.94 (0.11)	1.02 (0.15)	0.50** (0.14)	0.37*** (0.13)	REF	0.98 (0.27)	0.56** (0.16)	
2nd consensual union	--	--	--	--	0.96 (0.22)	1.81*** (0.37)	0.51* (0.18)	0.66 (0.21)	1.02 (0.28)	1.77** (0.52)	REF	
Divorced/sep.	1.13 (0.16)	1.97*** (0.23)	0.95 (0.21)	0.97 (0.18)	1.12 (0.16)	1.98*** (0.22)	0.60 (0.20)	0.73 (0.21)	1.19 (0.21)	1.94*** (0.37)	1.17 (0.28)	1.10 (0.21)
Widowed	1.21 (0.38)	1.69* (0.48)	1.00 (0.44)	0.83 (0.33)	1.20 (0.38)	1.69* (0.49)	0.64 (0.31)	0.62 (0.28)	1.27 (0.42)	1.66* (0.48)	1.25 (0.57)	0.94 (0.37)
Single	1.43*** (0.095)	1.55*** (0.20)	1.19 (0.24)	0.76 (0.16)	1.40*** (0.095)	1.55*** (0.18)	0.75 (0.20)	0.57* (0.17)	1.49*** (0.17)	1.52** (0.30)	1.46 (0.37)	0.86 (0.20)
<b>Controls</b>												
# kids ever born	1.07*** (0.027)	1.16*** (0.035)	1.07*** (0.027)	1.16*** (0.035)	1.07*** (0.026)	1.16*** (0.035)	1.07*** (0.026)	1.16*** (0.035)	1.07*** (0.026)	1.16*** (0.035)	1.07*** (0.026)	1.16*** (0.035)
Pregnant	1.88*** (0.31)	1.62*** (0.30)	1.88*** (0.31)	1.62*** (0.30)	1.89*** (0.31)	1.62*** (0.30)	1.89*** (0.31)	1.62*** (0.30)	1.89*** (0.31)	1.62*** (0.30)	1.89*** (0.31)	1.62*** (0.30)
Age	1.00 (0.0050)	0.99 (0.0060)	1.00 (0.0050)	0.99 (0.0060)	0.99 (0.0054)	0.99 (0.0062)	0.99 (0.0054)	0.99 (0.0062)	0.99 (0.0054)	0.99 (0.0062)	0.99 (0.0054)	0.99 (0.0062)
Working	1.10	1.05	1.10	1.05	1.11	1.05	1.11	1.05	1.11	1.05	1.11	1.05

	(0.091)	(0.12)	(0.091)	(0.12)	(0.091)	(0.12)	(0.091)	(0.12)	(0.091)	(0.12)	(0.091)	(0.12)
No education+	1.07	1.47*	1.07	1.47*	1.08	1.47**	1.08	1.47**	1.08	1.47**	1.08	1.47**
	(0.20)	(0.29)	(0.20)	(0.29)	(0.20)	(0.29)	(0.20)	(0.29)	(0.20)	(0.29)	(0.20)	(0.29)
Primary school+	1.02	1.05	1.02	1.05	1.02	1.05	1.02	1.05	1.02	1.05	1.02	1.05
	(0.058)	(0.14)	(0.058)	(0.14)	(0.058)	(0.14)	(0.058)	(0.14)	(0.058)	(0.14)	(0.058)	(0.14)
Beyond sec. school+	1.04	0.72*	1.04	0.72*	1.04	0.72*	1.04	0.72*	1.04	0.72*	1.04	0.72*
	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)	(0.096)	(0.14)
Indigenous	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00	0.91	1.00
	(0.094)	(0.15)	(0.094)	(0.15)	(0.093)	(0.15)	(0.093)	(0.15)	(0.093)	(0.15)	(0.093)	(0.15)
# <18 in HH	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02
	(0.017)	(0.016)	(0.017)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
# adults in HH	0.96***	0.91***	0.96***	0.91***	0.96**	0.91***	0.96**	0.91***	0.96**	0.91***	0.96**	0.91***
	(0.014)	(0.021)	(0.014)	(0.021)	(0.015)	(0.022)	(0.015)	(0.022)	(0.015)	(0.022)	(0.015)	(0.022)
Wealth 1	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00	1.02	1.00
	(0.026)	(0.038)	(0.026)	(0.038)	(0.025)	(0.037)	(0.025)	(0.037)	(0.025)	(0.037)	(0.025)	(0.037)
Wealth 2	1.05*	1.04	1.05*	1.04	1.05*	1.04	1.05*	1.04	1.05*	1.04	1.05*	1.04
	(0.027)	(0.050)	(0.027)	(0.050)	(0.028)	(0.050)	(0.028)	(0.050)	(0.028)	(0.050)	(0.028)	(0.050)
Wealth 3	0.96	0.94*	0.96	0.94*	0.96	0.94**	0.96	0.94**	0.96	0.94**	0.96	0.94**
	(0.027)	(0.030)	(0.027)	(0.030)	(0.027)	(0.029)	(0.027)	(0.029)	(0.027)	(0.029)	(0.027)	(0.029)
Rural++	0.90	0.87	0.90	0.87	0.90	0.87	0.90	0.87	0.90	0.87	0.90	0.87
	(0.074)	(0.095)	(0.074)	(0.095)	(0.073)	(0.094)	(0.073)	(0.094)	(0.073)	(0.094)	(0.073)	(0.094)
Constant	2.55***	1.20	3.06***	2.44***	2.63***	1.20	4.93***	3.26***	2.47***	1.22	2.52***	2.16**
	(0.44)	(0.25)	(0.83)	(0.65)	(0.48)	(0.25)	(1.53)	(1.00)	(0.45)	(0.28)	(0.82)	(0.67)
Log likelihood	-7973	-7973	-7973	-7973	-7970	-7970	-7970	-7970	-7970	-7970	-7970	-7970

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \*p<0.1

+Reference: Some secondary school, including high school graduates. ++Reference: large or small urban area.



**Table 5** – Prospective change in union status and change in mental health of Mexican women (To be done.)

## References

- Amador, J.P. 2004. "Diferencias en el Curso de Vida de Madres e Hijas: Cambio Intergeneracional en la Salida del Hogar." Pp. 297-326 in *El Amanecer del Siglo y la Poblacion Mexicana*, edited by F.L. Ascencio. Mexico, D.F.
- Andrade, L., E.E. Walters, V. Gentil, and R. Laurenti. 2002. "Prevalence of ICD-10 mental disorders in a catchment area in the city of Sao Paulo, Brazil." *Social Psychiatry and Psychiatric Epidemiology* 37:316-325.
- Angeles, G., D.K. Guilkey, and T.A. Mroz. 2005. "The Impact of Community-Level Variables on Individual-Level Outcomes: Theoretical Results and Applications." *Sociological Methods & Research* 34(1):76-121.
- Brown, S.L. 2000. "The effect of union type on psychological well-being: depression among cohabitators versus marrieds." *Journal of Health and Social Behavior* 41:241-255.
- CONAPO. 2000. "Situacion Actual de la Mujer en Mexico." Mexico City: <http://www.conapo.gob.mx/publicaciones/cuaderno3.htm>.
- . 2003. "Informe de Ejecucion del Programa de Accion de la Conferencia Internacional sobre la Población y el Desarrollo 1994-2003." Mexico City: <http://www.conapo.gob.mx/publicaciones/inicios/008.htm>.
- . 2005. "La Fecundidad en Mexico. Niveles y Tendencias Recientes." Mexico City: <http://www.conapo.gob.mx/publicaciones/inicios/003.htm>.
- Das, J., Q.-T. Do, J. Friedman, D. McKenzie, and K. Scott. 2007. "Mental Health and Poverty in Developing Countries: Revisiting the Relationship." *Social Science & Medicine* 65(3):467-480.
- Duncan, G.J., B. Wilkerson, and P. England. 2006. "Cleaning up their act: the effects of marriage and cohabitation on licit and illicit drug use." *Demography* 43:691-710.
- Filgueria, C. and A. Peri. 2004. *America Latina: Los Rostros de la Pobreza y sus Causas Determinantes*. Santiago, Chile: CEPAL, United Nations.
- Filmer, D. and L.H. Pritchett. 2001. "Estimating Wealth Effects without Expenditure Data-Or Tears: An Application to Educational Enrollments in States of India." *Demography* 38(1):115-132.
- Frank, R. and E. Wildsmith. 2005. "The Grass Widows of Mexico: Migration and Union Dissolution in a Binational Context." *Social Forces* 83:919-948.
- Frech, A. and K. Williams. 2007. "Depression and the Psychological Benefits of Entering Marriage." *Journal of Health and Social Behavior* 48(2):149-163.
- Garcia, B. and O. Rojas. 2001. "Recent Transformations in Latin American Families: A Sociodemographic Perspective." in *Paper presented at the XXIV General Conference of IUSSP*. Salvador, Brazil.
- Gorn, S.B., M.T. Sainz, and M. Icaza. 2005. "Demographic Variables Related to Depression: Differences between Males and Females Living in Low Income Urban-Areas." *Salud Mental* 28(6):33-40.

- Kamp Dush, C.M. and P.R. Amato. 2005. "Consequences of relationship status and quality for subjective well-being." *Journal of Social and Personal Relationships* 22:607-627.
- Kessler, R.C., W.T. Chiu, O. Demler, and E.E. Walters. 2005. "Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the National Comorbidity Survey Replication." *Archives of General Psychiatry* 62:617-627.
- Lichter, D.T., D.R. Graefe, and J.B. Brown. 2003. "Is Marriage a Panacea? Union Formation among Economically Disadvantaged Unwed Mothers." *Social Problems* 50(60-86).
- Long, J.S. 1997. *Regression Models for Categorical and Limited Dependent Variables*. Thousand Oaks, CA: Sage Publications.
- Lopez, L.S. 2004. "Revision Demografia del Divorcio en Mexico." Pp. 375-393 in *El Amanecer del Siglo y la Poblacion Mexicana*, edited by F.L. Ascencio. Mexico, D.F.
- Martin, T.C. 2002. "Consensual Unions in Latin America: Persistence of a Dual Nuptiality System." *Journal of Comparative Family Studies* 33(1):35-55.
- Osler, M., M. McGue, R. Lund, and K. Christensen. 2008. "Marital status and twins' health and behavior: An analysis of middle-aged Danish twins." *Psychosomatic Medicine* 70(4):482-487.
- Parker, S.W., L.N. Rubalcava, and G. Teruel. 2008. "Working Conditions and Mental Health in Mexico: Evidence from MxFLS."
- Parrado, E.A. and M. Tienda. 1997. "Women's Roles and Family Formation in Venezuela: New Forms of Consensual Unions?" *Social Biology* 44(1-2):1-24.
- Patel, V. and A. Kleinman. 2003. "Poverty and common mental disorders in developing countries." *Bulletin of the World Health Organization* 81:609-615.
- Pearlin, L. and J. Johnson. 1977. "Marital status, life strains, and depression." *American Sociological Review* 42:704-715.
- Prince, M., V. Patel, S. Saxena, M. Maj, J. Maselko, M.R. Phillips, and A. Rahman. 2007. "No Health Without Mental Health." *The Lancet* 370(9590):859-877.
- Quilodran, J. 2004. "Formacion y Descendencia de las Parejas Conyugales." Pp. 288-297 in *El Amanecer del Siglo y la Poblacion Mexicana*, edited by F.L. Ascencio. Mexico, D.F.
- Ross, C.E. 1995. "Reconceptualizing marital status as a continuum of social attachment." *Journal of Marriage and Family* 57:129-140.
- Ross, C.E., J. Mirowsky, and K. Goldsteen. 1990. "The impact of the family on health: the decade in review." *Journal of Marriage and the Family* 52:1059-1078.
- Rubalcava, L. and T. Graciela. 2006. "User's Guide for the Mexican Family Life Survey: First Wave." Available at: <http://www.mxfls.cide.edu>. (Accessed March 15, 2008.).

- Solis, P. 2004. "Cambios Recientes en la Formacion de Uniones Consensuales en Mexico." Pp. 353-373 in *El Amanecer del Siglo y la Poblacion Mexicana*, edited by F.L. Ascencio. Mexico, D.F.
- Strohschein, L., P. McDonough, G. Monette, and Q. Shao. 2005. "Marital transitions and mental health: Are there gender differences in the short-term effects of marital status change?" *Social Science and Medicine* 61:2293-2303.
- Teitler, J.O. and N.E. Reichman. 2008. "Mental Illness as a Barrier to Marriage among Unmarried Mothers" *Journal of Marriage and Family* 70(3):772-782.
- Umberson, D. 1987. "Family status and health behaviors: social control as a dimension of social integration." *Journal of Health and Social Behavior* 28:306-319.
- Umberson, D. and K. Williams. 1999. "Family status and mental health." Pp. 225-253 in *Handbook of the Sociology of Mental Health*.
- United Nations. 2006a. "Divorce Statistics."
- . 2006b. "Marriage Statistics."
- Vega, W.A., K. Bohdan, and J.R. Valle. 1986. "The Relationship of Marital Status, Confidant Support, and Depression among Mexican Immigrant Women." *Journal of Marriage and the Family* 48:597-605.
- Wade, T.J. and D.J. Pevalin. 2004. "Marital Transitions and Mental Health." *Journal of Health and Social Behavior* 45:155-170.
- Waite, L.J. 1995. "Does marriage matter?" *Demography* 32:483-507.
- Waite, L.J. and M. Gallagher. 2000. *The Case for Marriage: Why Married People are Happier, Healthier, and Better off Financially*. New York: Doubleday.
- Weissman, M.M., R.C. Bland, G.J. Canino, C. Faravelli, S. Greenwald, and H.G. Hwu. 1996. "Cross-national epidemiology of major depression and bipolar disorder." *JAMA* 276:293-299.
- Williams, D.R., D.T. Takeuchi, and R.K. Adair. 1992. "Marital-Status and Psychiatric Disorders among Blacks and Whites." *Journal of Health and Social Behavior* 33(2):140-157.
- Williams, K. 2003. "Has the future of marriage arrived? A contemporary examination of gender, marriage, and psychological well-being." *Journal of Health and Social Behavior* 44:470-487.
- Williams, K. and D. Umberson. 2004. "Marital Status, Marital Transitions and Health: Gendered Life Course Perspective." *Journal of Health and Social Behavior* 45(1):81-98.
- Willitts, M., M. Benzeval, and S. Stansfeld. 2004. "Partnership history and mental health over time." *Journal of Epidemiology and Community Health* 58:53-58.
- World Bank. 2005. "Poverty in Mexico - Fact Sheet."
- World Health Organization. 2000. "Women's Mental Health: An Evidence Based Review." Geneva: World Health Organization.

—. 2007. "10 Facts on Mental Health." edited by W.H. Organization. Geneva: World Health Organization.

Wu, Z.and R. Hart. 2002. "The Effects of Marital and Nonmarital Union Transition on Health." *Journal of Marriage & Family* 64(2):420-432.

Zhang, Z. 2006. "Marital History and the Burden of Cardiovascular Disease in Midlife." *The Gerontologist* 46(2):266-270.