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Reference:

Van de Velde Sarah, Huijts Tim, Bracke Piet, Bambra Clare.- Macro-level gender equality and depression in men and women in Europe

Sociology of health and illness - ISSN 0141-9889 - 35:5(2013), p. 682-698

Full text (Publisher's DOI): <http://dx.doi.org/doi:10.1111/J.1467-9566.2012.01521.X>

Macro-level Gender Equality and Depression in Men and Women in Europe

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Abstract

A recurrent finding in international literature is a greater prevalence of depression in women compared to men. While explanations for this gender gap have been studied extensively at the individual level, few researchers have studied macro-level determinants of depression in men and women. In the current study we aim to examine the micro-macro linkage of the relationship between gender equality and depression by gender in Europe, using data from the European Social Survey, 2006-2007 (N: 39,891). Using a multilevel framework we find that a high degree of macro-level gender equality is related to lower levels of depression in both women and men. It is also related to a smaller gender difference in depression, but only for certain social subgroups, and only for specific subdimensions of gender equality.

Macro-level Gender Equality and Depression in Men and Women in Europe

Introduction

A recurrent finding in international literature is a greater prevalence of depression in women compared to men (Author et al., 2009). Theories about gender-based exposure to social stressors show elevated depression in women to be a consequence of inequality. The underlying premise has often been that absolute gender equality will result in little or no gender difference in mental health, since men and women now occupy similar roles and similar stressors confront them (Annandale and Hunt 2000). The greater the equality in a society, the smaller the gender gap in mental health problems. The literature on social risk factors is replete with studies about the association between depression and individual-level risk factors. Few studies explored the relationship of macro-level gender equality and depression. Because the aims of the current study resonate with the recently recognized importance of the macro-level social and political context in determining mental health (Diez-Roux 2000), we intend to examine how macro-level gender equality is associated with depression in men and women, and how this association varies according to individual-level power resources.

Review of Literature and Hypotheses

The Gendered Distribution of Power Resources at the Micro and Macro Level

Gender equality implies a society in which women and men enjoy the same opportunities and outcomes in all spheres of life (Kabeer 1999). A critical aspect of promoting gender equality is the empowerment of women, identifying and redressing power imbalance and giving women more autonomy to manage their own lives. The ability to exercise choice embeds the gendered distribution of resources, as well as the degree of agency of men and women. The first dimension relates to the extent to which males and females who are otherwise social equals (e.g., in terms of age, social class, ethnicity, and

religion) are equal in their access to the scarce and valued resources of their society (Chafetz 1990). Access to such resources reflects the rules and norms which govern distribution and exchange in different institutional arenas. These rules and norms give certain actors authority over others in determining the principles of distribution and exchange so that the distribution of 'allocative' resources tends to be embedded within the distribution of 'authoritative resources' (Giddens, 1979) – the ability to define priorities and enforce claims. The second dimension of power relates to agency – the ability to define one's goals and act upon them. It refers to people's capacity to define and pursue their own life-choices even in the face of opposition from others. Resources and agency together constitute what Sen (1985) refers to as capabilities: the potential that men and women have for living the lives they want. When the failure to achieve one's goals reflects some deep-seated constraints on the ability to choose, it can be taken as a manifestation of disempowerment.

Theories on gender equality primarily focus on the gendered organization of production, which stresses the economic positions of men and women, and the gendered organization of reproduction, which focuses on childbirth and parenting, and the effects they have on women's economic activities or on gender psychodynamics and culture. Other dimensions sometimes include sexual politics, which concerns erotic relationships and their connection to social power (Collins et al. 1993), and gender social definitions, including beliefs, values, stereotypes, and norms that are widely shared by societal members (Chafetz 1990). The roles and power resources available to each gender may overlap or be completely segregated and vary extensively cross-culturally. However, in advanced industrial societies, two important cross-cultural uniformities in the gendered division of labor can be identified (Lewis 2006). First, men invest more time in the gendered organization of production; they participate in a variety of the extra-domestic tasks of their societies, while women's participation in such work varies from practically none to substantial. Second, women invest more time in the gendered organization of reproduction; they are uniformly more responsible than men are for child rearing, food preparation, and care of the domicile. Men's participation in such tasks ranges from

none at all to substantial, while women's participation is generally high. While the traditional family with a wage-earning father and a stay-at-home mother is declining in number, in most European countries housekeeping and care giving is still mainly a woman's responsibility (Lewis, Campbell, and Huerta 2008).

Additionally, the degree of gender inequality is not uniform within a complex society. It varies depending on the level of other power structures—class, age, ethnicity, family composition, and so on (Blumberg 1984). Inequality of power, which is itself a scarce and valued resource, undergirds all systems of stratification. Resources and prestige associated with social positions affect power, defined as individuals' ability to impose their will on other persons (Weber 1946). Women's primary responsibilities within the gendered organization of reproduction are often associated with lower status and less reward than men's primary responsibilities in the gendered organization of production (Rosenfield 1992). However, in advanced industrial societies, the largest variation in power distribution between men and women exists at the micro level, where power resources are relatively more accessible to women, than at the supra-micro level (Blumberg 1984). At the mezzo and macro levels, power accrues specifically to the incumbents in elite positions, particularly in dominant social institutions. Political and economic organizations constitute the dominant social institutions, with religious, educational, and other culture producing organizations constituting secondary but nonetheless important social institutions (Chafetz 1990). In advanced industrial societies, men overwhelmingly fill these elite roles, and the variation in gender inequality is smaller than it is at the micro level. In elite roles, incumbents control the resources of their organizations. They serve as societal gatekeepers, distributing concrete opportunities and rewards. Individual-level and macro-level gender inequality are therefore closely intertwined. Macro-level gender inequality not only creates opportunities and constraints for women and men, but also defines normality models, influencing preferences, identities, and moral rationalities.

Macro-level Gender Inequality and Depression in Men and Women

Research has demonstrated that depression is intimately tied to and a consequence of power and

powerlessness. Powerlessness or lack of control in one's life is a well-known risk factor for depression (Mirowsky and Ross 2003). Female roles seem more prone to limitations associated with lack of choice and to role overload, and women in these roles tend to have competing social roles and to be undervalued; therefore, powerlessness and lower status levels characterize female social positions more (Collins et al. 1993). Most depression-related research has focused on individual-level risk factors—the gender-specific demands of marriage, childcare, and employment—and on stressful life events—marital disruption, poverty, and employment problems (for an overview see Piccinelli and Wilkinson 2000). An important aspect hereby is the combination of responsibilities associated with employment, housekeeping and care giving resulting in possible role overload and role conflict (Bird 1999{Griffin, 2002 656 /id}). Research on macro-level gender inequality and depression is less extensive. Although the "society and health" perspective on depression research is not new, we know relatively little about the degree to which macro-level characteristics influence the magnitude of gender mental health inequalities. Research in other health-related domains has shown that there are genuine population-level risk factors. Generally, either the relative resources hypothesis or the "doing-gender" hypothesis is used to explain these associations.

The relative resources hypothesis derives from both game theory in economics and social exchange theory in sociology (Blood and Wolfe 1960). Individual-level power resources, such as education, employment, income, and time constraint due to care responsibilities, allow men and women to depart from the traditional division of labor. At the individual level, women may have achieved relatively higher "net economic power" (Blumberg and Coleman 1989) compared to men, which they can use in bargaining situations concerning personal career trajectories or housekeeping and care arrangements. However, male control over the political economy and male dominated ideologies at the macro level may act as a "discount factor" countering the power of individual women's resources. Blumberg and Coleman (1989: 234) state that "male control at the top echelons of the political economy affects the national policy agenda, the opportunity structure that women encounter, and the prevailing ideology of what women's place in that structure

should be.” Conversely, more female power at the macro level may enable women to create opportunities that actually benefit their health. Previous research has shown positive associations between gender equality and general health outcomes. Kawachi and colleagues (1999) demonstrated that both American women and men experience higher mortality and morbidity in states with lower levels of macro-level gender equality. In a study of 51 countries, Stanistreet et al. (2005) demonstrated that greater patriarchy correlated with higher mortality rates among men. Torsheim et al. (2006) found that gender differences in health complaints were larger in countries with a low gender-development index score. Backhans and colleagues (2007) however found negative effects of increased gender equality, both for women, who become more burdened, and for men, who as a group lose many of their old privileges.

The doing-gender hypothesis focuses on gendered expectations about interaction and on how individuals construct gender through daily tasks. West and Zimmerman (1987) posited that people actively manage social interactions in consideration of normative expectations. The most common hypothesis derived from their theory is that in counter-normative situations women will “do gender” by engaging in more stereotypically female work, such as housework and care giving, while men will do gender by performing stereotypically male work and avoiding stereotypically female work. This compensatory feminine or masculine behavior in a counter-normative situation may result in actual harm to health. Research has shown that in male-breadwinner societies, women with relatively high economic power suffer more from health problems than women with low economic power, due to an increase in role overload and work-family conflicts (Author et al. 2008; Author, Author, and Levecque 2010). Others found an increase in unhealthy compensatory masculine behavior such as driving, excessive alcohol consumption, and aggressive behavior in gender-equal societies both among lower-class men (Backhans, Lundberg, and Mansdotter 2007; Connell 1995; Sabo and Gordon 1996), and among higher-class women (Stets and Burke 2005; Ferraro 2010).

While research in other health-related domains has extensively shown the relevance of macro-level gender inequality, in depression research the focus has been limited primarily to the economic

context's impact. A study by Kahn and colleagues (2000) showed that in the US, state-level income inequality is associated with higher odds of depressive symptoms in women, regardless of their individual income. Bockerman and colleagues (2009) found that the effect of gender differences in regional income inequality affected physical health but not mental health. Van Praag and colleagues (2009) found that living in an area with high unemployment is more detrimental to the mental health of women than of men. Only two studies have tested an inclusive gender equality hypothesis on depression. Their findings however were contradictory. The first study (Chen et al. 2005) found that in the US, states in which women's status was higher reported that depression among women was less prevalent. This effect was consistent across racial and socioeconomic backgrounds. In contrast, Hopcroft and Bradley's study (2007) found that even though depression is more a feature of low gender equality societies, the gender gap in depression was larger in high equality countries, as measured by the United Nation's Gender Development Index. However, both studies have several shortcomings. The first study considered only women from a homogenous sample of US states. The second examined a larger range of countries, including both nonadvanced and advanced industrial societies. However, it had only one general item available as an indicator of depression. Moreover, it did not control for overall level of wealth, making the interpretation of the gender development index imprecise. It thus remains unclear how societal gender equality is associated with gender differences in mental health.

Study Aim and Hypotheses

In the current study, we aim to examine how macro-level gender equality, measured by the Gender Empowerment Measure (GEM) (United Nations Development Programme 2005), is associated with depression in men and women. We will make use of the third wave of the European Social Survey (ESS-3). The ESS-3 is representative for the general population in almost all European countries and has gathered information on depression using a shortened version of an internationally validated and reliable inventory, the Centre for Epidemiologic Depression Scale (CES-D). Using the ESS-3 has certain advantages. First, it allows us to examine information from the majority of European countries

instead of a convenience sample within Europe. Second, by restricting our analysis to Europe, we exclude much of the complexity in the sociopolitical background of other regions, which is difficult to capture fully in cross-continental research. Europe has a shared social and cultural history (Chirot 1985), but provides enough variation in the degree of gender equality and economic development to be useful for our research aims. We have structured our investigation according to two sets of hypothesis.

We base our first set of hypotheses on concepts often formulated in research investigating macro-level gender equality and health-related research and assume a general population perspective. We derive our baseline hypothesis from the idea that healthy societies produce healthy individuals. The concept of an overall correspondence between the whole and its parts is an integral part of our thinking about social facts (Hondrich 1987). After applying this idea to the association between macro-level gender equality and depression, we propose the following: *Hypothesis 1: Increases in macro-level gender equality are associated with lower levels of depression in men and women.* Some research, however, has found that an increase in macro-level gender equality is actually detrimental to mental health. Several mechanisms may explain this. With greater gender equality, new risk factors arise, such as a higher incidence of relationship disruption and single parenthood (Cooke and Baxter 2010). Additionally, lives are less predetermined in high gender equality societies: greater choice may mean more conflict over possible roles and a higher risk of feeling relatively deprived, thus lowering the mental health of both men and women (Hopcroft and Bradley 2007). Women might become more burdened or adopt some of the risky health behaviors of men. Men might feel threatened because of the loss of some privileges (Backhans, Lundberg, and Mansdotter 2007). Therefore, our second hypothesis proposes the following: *Hypothesis 2: Increases in macro-level gender equality are associated with higher levels of depression in men and women.* Most ecological studies however have found that increased gender equality at the macro-level predicts smaller gender differences in mental health. Therefore, our third hypothesis does not focus on whether increases in equality lead to an increase or decrease in depressive feelings, but on a possible convergence of the prevalence in depressive feelings in men and women. *Hypothesis 3: Increases in macro-level gender equality will*

reduce gender differences in depression.

Our second set of hypotheses is more explorative and focuses on the interaction between macro-level gender equality, gender, and a number of other power resources. Findings that are more recent indicate that there is not a linear relationship between gender and health as groups of women and men are not homogenous. Hence, we link mental health to the theoretical framework of intersectionality. Intersectionality demonstrates that gender does not act independently, but is moderated by context, which determines access to resources that can promote or damage mental health. Dominant and subordinate gender groups are produced not only in relation to the opposite gender, but also in relation to one another (Connell 1995). Therefore, changes in the degree of macro-level gender equality will likely not affect all layers of society equally. As noted above, certain groups may draw more or fewer benefits from macro-level gender equality depending on individual access to certain power resources, such as socioeconomic resources and freedom from housekeeping and childcare responsibilities. On the one hand, intersectionality proposes that macro-level gender equality can enhance or reduce the net amount of power of men and women. On the other, the alignment between macro-level gender equality and individual-level resources also comes into play, suggesting that in counter-normative situations the mental health of men and women is actually threatened. Research on the specific pathways however is still scarce and hypothetical. In the current study, we therefore select specific positions of men and women within the gendered organization of production and reproduction in order to explore a nuanced association between macro-level gender equality and depression.

Regarding gendered organization of production, we propose that both employment and income are important moderators of the association between macro-level gender equality and depression in men and women. A higher income increases decision-making power among men and women, while economic hardship is a major risk factor for both (Levecque et al. 2011; Ross and Huber 1985). Likewise, an employed individual experiences more personal power; unemployment enhances feelings of powerlessness (Artazcoz et al. 2004; Bird and Ross 1993; Reynolds and Ross 1998). However, inequalities in power between men and women are particularly pronounced when

women are not employed; when women are employed, inequalities in demands increase (Rosenfield 1992). *Hypothesis 4: The level of gender equality within the society moderates the degree to which being in paid employment and living in poverty are associated with depression in men and women.*

Regarding the organization of reproduction, empirical research shows that both childcare and cohabiting with a partner are associated with depression. Cohabiting is shown to be beneficial for well-being (Marks 1996), but benefits varies by gender (Bird 1999) and the degree of gender equality among spouses moderates them (Horwitz, McLaughlin, and White 1998; Mirowsky 1985). Most research finds that parents do not significantly differ from nonparents in levels of depression, nor do they report significantly more emotional distress than the childless (Evenson and Simon 2005). Mothers with young children especially seem to be at risk (Umberson and Gove 1989). The emotional rewards derived from parenthood are often overshadowed by demands and stressors associated with the role. In the current study, we therefore examine the association between macro-level gender equality and both aspects of the gendered organization of reproduction—cohabiting with a partner and childcare responsibilities. *Hypothesis 5: The level of gender equality within the society moderates the degree to which the presence of young children and cohabiting with a partner is associated with depression in men and women.*

Methodology

Sample: The European Social Survey, 2006/2007

We based our analyses on the third round of the European Social Survey (ESS-3 <http://www.europeansocialsurvey.org>), which covered 25 European countries in 2006 and 2007. The ESS-3 selected respondents using strict probability samples of the resident national population aged 15 or older living in private households irrespective of their language, citizenship, and nationality. Proxies were not allowed. Data was gathered via face-to-face interviews. In our analyses, we restricted ourselves to respondents aged 18 to 75. The unweighted sample consisted of 39,891

respondents (18,306 men, 21,585 women).

Dependent Variable: Depression

An eight-item version of the Center for Epidemiologic Studies Depression Scale (Radloff 1977) is used to measure the frequency and severity of depressive symptoms as defined in the DSM IV criteria for major depressive disorder. The CES-D was built to identify populations at risk of developing depressive disorders; it should not, however, be used as a clinical diagnostic tool by itself.

Respondents were asked to indicate how often in the week previous to the survey they felt or behaved in a certain way (felt depressed, felt that everything was an effort, slept badly, felt lonely, felt sad, could not get going, enjoyed life, or felt happy). Response categories forming a 4-point Likert scale ranged from *none or almost none of the time* (0) to *all or almost or all of the time* (3). Scale scores for the CES-D 8 were assessed using nonweighted summated rating and ranged from 0 to 24, with higher scores indicating a higher frequency and severity of depressive complaints. If four or fewer items were missing, mean substitution was applied (N: 1753). Reliability and validity of the inventory were confirmed across gender and countries (Author et al. 2010).

Macro-level Indicators

Macro-level gender equality. Macro-level gender equality is measured using the GEM (UNDP 2005), which examines the extent to which women and men are able to participate in economic and political life and take part in decision making. GEM captures gender equality in three key areas: (1) political participation and decision-making power, as measured by women and men's percentage shares in parliamentary seats; (2) economic participation and decision-making power, as measured by two indicators—women and men's percentage shares of positions as legislators, senior officials, and managers, and women and men's percentage shares of professional and technical positions; and (3) power over economic resources, as measured by women and men's estimated earned income (PPP US\$). In our analyses, we used these three separate subscales as well as the general GEM (all subscales combined) to see if using subscales instead of an all-encompassing measure would lead to

different results. For each indicator, a higher score reflects a higher level of gender equality. All macro-level indicators were grand mean centered in order to control for multicollinearity between the main effect of gender and the interaction term of gender with the GEM indicators.

Controls. In all models that include our gender equality measures, we controlled for Gini coefficients, with a higher score indicating a higher level of income inequality (World Bank 2009). By controlling for Gini coefficients, we took correlations between countries' levels of income inequality and gender equality into account.

Micro-level Indicators

Our main variable, *gender*, was coded as a dummy variable, with men as the reference category (0 = Men, 1 = Women). We controlled for respondents' age and a squared term for age (divided by 100) to account for nonlinear effects.

Socioeconomic-related indicators. The socioeconomic position of a respondent was measured by employment status, educational level, and household income. Employment status was coded as a set of dummy variables. Respondents were either in paid employment, a student, unemployed, permanently sick or disabled, retired, a housekeeper (performing housework or caring for children or others), or in another unidentified occupational position. This last category included respondents, such as those in community or military service, whose occupational position did not fit into one of the other categories. Respondents in paid employment were identified as the reference category. We measured the educational level of the respondents by the total number of years in full-time education. While this is not an optimal way of measuring educational level, Schneider (2007) showed that this measure is acceptable for cross-national comparisons. To account for nonlinear effects of the number of years in full-time education, we also included a squared term (divided by 100). The income position of respondents was assessed by relative equivalent household income, using the Modified OECD Equivalence Scale (OECD 2005). To account for the high number of item nonresponses, relative equivalent income was coded into five categories, with one category representing respondents with missing data on income. The other categories represented people living in relative poverty (<

50% of the median equivalent income); a low-income group (50%–80% of the median equivalent income); people with an income around the national average (80%–120% of the median equivalent income), and people with relatively high incomes ($\geq 120\%$ of the median equivalent income: reference category).

Family- and childcare-related indicators. The marital status of respondents was measured by a set of four dummy variables: respondents may either be (1) married or in a civil partnership, (2) divorced or separated, (3) widowed, or (4) single. The first category was identified as the reference group, with a civil partnership having a legal status equivalent to being married. We also included an indicator for whether the respondent cohabits with a partner, regardless of marital status (0 = No, 1 = Yes). Finally, an indicator was included that measured whether or not children less than 12 years of age live in the respondent's household (0 = No, 1 = Yes).

Statistical Procedure

In order to test our first set of hypotheses, we analyzed the relationship between the macro-level gender equality indicators and depression in men and women using linear multilevel regression analyses in HLM. Multilevel models offer the advantage of accounting for the structure of our data: individuals are hierarchically nested within countries. Neglecting this pattern of clustering leads to an underestimation of standard errors for country-level characteristics (Snijders and Bosker 1999). First, we modeled the main effects of both the gender and the macro-level gender equality indicators (Hypotheses 1 and 2); second, we added a cross-level interaction term between gender and the four macro-level gender equality measures (Hypothesis 3). Table 1 presents the results. For each variable, we report unstandardized regression coefficients (B), with higher scores indicating more depressive feelings, as well as standard errors (SE), and significance. Additionally, we examine the extent to which the overall variation in depression is located at either the individual level (individual variance) or the country level (country variance). Finally, the random slope component allows us to examine whether the effect of gender varies significantly across countries.

To test our second set of hypotheses, we examined to what extent the association between macro-level gender equality and depression in men and women varies among subgroups. Regarding

the gendered organization of production, we compared employed with unemployed persons, and people who live in relative poverty (< 50% of the median equivalent income) with people who do not. When considering the organization of reproduction, we compared people cohabiting with a partner with people not cohabiting with a partner, and people with children below age 12 in the household with people without young children. Table 2 presents the results of these subgroup analyses.

Mean depression scores for each country in our sample for men and women separately, along with the values of the macro-level gender equality indicators are presented in Appendix 1.

Results

Gender Equality and Depression in Men and Women: Analyses of the Total Sample

Table 1 presents the results of the multilevel models testing our first set of hypotheses. In Model 1, we included one fixed and one random parameter for gender, thereby allowing the effect of gender on depression to vary across countries. We controlled only for age and a quadratic term for age in this model. The results show a clear gender gap in depression in Europe: women score almost one unit higher (0.82) on the depression scale than men. Additionally, the significant random slope parameter indicates that the gender difference in depression does indeed vary across European countries. The other variance components demonstrate that while the largest part of variance (91.2%) is located at the individual level $\{ [15.07 / (1.46+15.07)] * 100 = 91.2\%$ }, the country level also contributes to variation in depression (8.8%).

In Model 2, we added all control variables at the individual level to examine to what extent cross-national variation in the gender gap in depression is due to differences among countries in socioeconomic or demographic composition. After including the control variables, both the gender effect on depression and, to a lesser extent, the random slope estimate, is reduced. This indicates that at the micro level, socioeconomic and demographic characteristics partly explain both the gender gap in depression and cross-national variation in this gender gap. The largest part of the cross-national variation in the gender difference in depression is however still unexplained in Model 2, meaning that country-level variables may account for the variation in the gender gap in depression between

countries.

In Models 3a to 6a, we included the four indicators of macro-level gender equality and added the Gini coefficient as a control variable. The results indicate that in general, macro-level gender equality is associated with less depression in men and women, confirming our first hypothesis. We find this association for the general GEM, political participation, and power over resources. However, macro-level gender equality as measured by economic participation is associated with more depression in men and women, confirming our second hypothesis. This may reflect the fact that gender equality in economic participation is especially high in the former Soviet republics, where depression levels among both men and women are also among the highest.

We added cross-level interaction terms between the macro-level gender equality measures and gender to Models 3b to 6b, allowing us to test our third convergence hypothesis. None of these cross-level interaction effects appears to be significant, suggesting that both men and women benefit similarly from increased macro-level gender equality. Country-level variance is reduced strongly in the models that include macro-level gender equality measures, indicating that these measures along with the control of the Gini coefficient may account for much of the cross-national variation in mean depression scores. However, the inclusion of these macro-level gender inequality measures only slightly reduces the random slope effect of gender, meaning that macro-level gender equality explains cross-national variation in the gender gap in depression to only a limited extent.

Table 1: Multilevel Model Results

Gender Equality and the Gender Gap in Depression: Subgroup Analyses

Table 2 presents the results of multilevel models distinguishing four subgroups within the gendered organization of production and four subgroups within the gendered organization of reproduction. For all eight subgroups, the main effects of the four indicators of gender equality are similar to the main effects in Table 1, suggesting that these effects of gender equality are quite robust across different social strata (results not shown). When considering the gendered organization of

production (Hypothesis 4), we find that macro-level gender equality is associated with fewer feelings of depression among the employed respondents, but not among the unemployed. Only equality in economic participation does not influence the gender gap in depression in both unemployed and employed respondents as well. The association between macro-level gender equality, depression and relative poverty is less apparent. When gender equality in power over resources is higher, the gender gap in depression is smaller, but only for respondents who do not live in poverty. For the other dimensions of macro-level gender equality a significant association could not be established.

Regarding the gendered organization of reproduction (Hypothesis 5), we compared respondents who were cohabiting with a partner to those who were not. The results demonstrate that high gender equality as indicated by the general GEM strongly reduces the gender gap in depression for those who are living without a partner, but not for cohabiting respondents. The gender equality subscales indicate that this is mostly due to equality in power over resources: as power over resources is divided more equally between men and women, the gender difference in depression is smaller, but this only applies to respondents who were not cohabiting with a partner. Equality in political and economic participation is not significantly associated with the gender gap in depression for either of these subgroups.

Finally, we analyzed separate models for respondents living with children below the age of 12 and respondents without young children. For both respondents with children below the age of 12 and respondents without children below the age of 12, none of the gender equality indicators appears to influence the gender gap in depression. This completely refutes the argument that the influence of gender equality on the gender difference in depression is different for individuals with young children in the household than it is for people without young children.

Table 2: Multilevel Model Results of Subgroup Analyses

Discussion

In this study, we tested two sets of hypothesis. The first set considered the way that macro-

level gender equality is associated with depression in men and women. For our sample as a whole, we were able to confirm Hypothesis 1 and reject Hypotheses 2 and 3. We found that men and women profit equally from macro-level gender equality, thus it neither amplifies nor diminishes women's disadvantage in depression. An exception to this are the results related to macro-level gender equality in economic participation, which was associated with more depression in men and women, confirming our second hypothesis. Distinguishing three subscales of gender equality thus demonstrated that some subdimensions of gender equality are more important than others are in influencing depression in men and women.

Our results also indicate that the degree of macro-level gender equality is not uniform throughout a society, but varies according to other power structures within the gendered organization of production and reproduction. Our approach—combining three subdimensions of gender equality with subgroup analyses in which we made four comparisons between social strata—yielded a number of interesting findings. First, gender equality in power over resources appears able to reduce the gender difference in depression only for respondents who were not cohabiting with a partner, respondents in paid employment, and respondents who do not live in poverty. This implies that women who act outside traditional role patterns (e.g., women who are in paid employment and not cohabiting) are most likely to benefit from high equality in power over resources. However, this may also imply that in societies with low equality in power over resources, those women who do not conform to traditional role patterns will have especially high levels of depression. For women who are nonemployed, cohabiting with a partner, and living in poverty, living in societies with high equality in power over resources does not seem to be beneficial. We tentatively conclude that having equal power over resources has salutary effects for independent women, and that a lack of power over resources may also harm this group most.

It is also interesting to note that high gender equality in political participation appears beneficial only to employed women. It is plausible that having a high percentage of women involved in political decision-making is conducive to employment policies that suit women's preferences. In many Western governments, increasing social welfare expenditures to implement policies requiring

and supporting the employment of women, particularly mothers, certainly reflects this (Cooke and Baxter 2010). Consequently, women may face less role conflict, role overload, and stress in those countries with high equality in political participation. Future research should elucidate whether specific policies may indeed account for the beneficial effect of equality in political participation among this social subgroup.

Finally, we found that gender equality in economic participation does not influence gender differences in depression in any of our models. Apparently, living in countries with equal representation of men and women in managerial and professional functions does not lead to a smaller difference in depression between men and women. Equal political participation and power over resources may improve women's lives in ways that equality of economic participation cannot. Perhaps equal employment opportunities might only be beneficial for mental health if they do not increase stress about work versus family responsibilities. The importance of economic power is directly related to the extent to which the welfare state enables women to survive as independent workers and to what extent it decreases the economic importance of the family in women's lives, also described as defamilization (Bambra, 2007). An optimal level of defamilialization should accompany equality of economic participation or it may have the opposite effect. Additionally, while economic participation is an important resource for empowerment, it might have an adverse effect if employment is compulsory because of high poverty levels and limited government-provided income replacement. Finally, in Eastern European countries we see high levels of gender equality in economic participation, but also high levels of unemployment among both men and women. Previous research showed that unemployment hurts well-being less in high-employment regions (Clark 2003).

In sum, we conclude that overall, a high degree of macro-level gender equality is beneficial for the mental health of both men and women, but the benefit is more pronounced in certain social subgroups, and for specific subdimensions of macro-level gender equality. Clearly, our results are more in line with Chen et al.'s conclusion (2005) that gender equality may reduce women's disadvantage in depression than with the findings of Hopcroft and Bradley (2007), who concluded that high gender equality might actually lead to a large gender gap in depression. There are two main

differences between the conclusions drawn by Hopcroft and Bradley (2007) and our findings. First, Hopcroft and Bradley used a nonvalidated single-item measure of depression, whereas we were able to employ a shortened version of the often-used CES-D scale. Second, whereas our sample was limited to European countries, Hopcroft and Bradley (2007) were able to include a few non-Western countries. In these societies, gender equality appeared to be low and the gender gap in depression proved to be small. Unfortunately, the authors did not report whether excluding non-Western countries might lead to different conclusions.

Our study has some important implications for European societies as they provide support for the importance of equal gender representation at the decision making level. For a very long time the Nordic countries and the Netherlands were alone at the very top of the world rank order in terms of women's political and economic representation. However, female empowerment has been on the agenda of many other European countries, with a variety of new legislations and actions. Since 1994 an additional six countries in the EU/EEA have introduced legislative electoral gender quotas, most recently Poland, Slovenia, Spain and Poland. In many other countries, political parties introduced voluntary quotas. In addition the European Union drafted a pledge with the aim of encouraging companies to increase the percentage of women on their boards to forty percent by 2020, however with limited effective implementation in the corporate world. Finally, the European Union mandates that men and women receive equal pay for equal work, but the gender pay gap remains significant in most countries. Within the light of the current research results, these initiatives need to be encouraged, as a more equal gender distribution of power at the macro-level has benefits for the mental health of the entire population, not just women.

However, focusing solely on top-level equality will not be sufficient. In the early 21st century, many European countries find themselves in transition. Whereas Southern European countries are experiencing a trend towards defamilization, many post-Communist-Era Eastern European countries are seeing an increased reliance on familial ties. As we have shown, these European regions also have the highest overall depression levels and the largest gender gaps in depression. Our results suggest that the trend towards defamilization in Southern Europe may lead to

a reduction in the gender difference in depression only if an improvement in gender equality in political participation and an increased power over resources complements it. If the level of gender equality remains stable in these societies, the growing number of unmarried women and women in paid employment may result in an increase of depressive problems among women. Conversely, in Eastern Europe, improving gender equality may not lead to a reduction of the gender gap in depression. Nevertheless, our results have demonstrated that gender equality does not influence the level of depression for married people and women not in employment.

References

- Annandale, E., and Hunt, K. 2000. *Gender Inequalities in Health*. Buckingham: Open University Press.
- Artazcoz, L et al., 2004. Unemployment and Mental Health: Understanding the Interactions Among Gender, Family Roles, and Social Class. *American Journal of Public Health*, 94(1): 82–88.
- Backhans, MC., Lundberg M., and Mansdotter A. 2007. Does Increased Gender Equality Lead to a Convergence of Health Outcomes for Men and Women? A Study of Swedish Municipalities. *Social Science & Medicine*, 64(9): 1892–903.
- Author, et al., 2008. Gender, Health Inequalities and Welfare State Regimes: A Cross-National Study of Thirteen European Countries. *Journal of Epidemiology and Community Health* 63:38–44.
- Bird, CE. 1999. Gender, Household Labor, and Psychological Distress: The Impact of the Amount and Division of Housework. *Journal of Health and Social Behavior* 40(1):32–45.
- Bird, CE., and Ross, CE. 1993. Houseworkers and Paid Workers—Qualities of the Work and Effects on Personal Control. *Journal of Marriage and the Family* 55(4):913–25.
- Blood, RO., and Wolfe, DM., 1960. *Husbands and Wives*. Glencoe: Free Press.
- Blumberg, RL. 1984. A General Theory of Gender Stratification. *Sociological Theory* 2:23–101.
- Blumberg, RL. and Coleman, MT.. 1989. A Theoretical Look at the Gender Balance of Power in the American Couple. *Journal of Family Issues* 10(2):225–50.
- Bockerman, P., et al. 2009. Economic Inequality and Population Health: Looking Beyond Aggregate Indicators. *Sociology of Health & Illness* 31(3):422–40.
- Chafetz, JS. 1990. *Gender Equity. An Integrated Theory of Stability and Change*. Newbury Park: Sage Publications, Inc.
- Chen, Y., et al. 2005. Women's Status and Depressive Symptoms: A Multilevel Analysis. *Social Science & Medicine* 60(1):49–60.
- Chirof, D. 1985. The Rise of the West. *American Sociological Review* 50(2):181–95.
- Clark, AE. 2003. Unemployment as a Social Norm: Psychological Evidence from Panel Data. *Journal of Labor Economics* 21(2):323–51.

- Collins, R., et al., 1993. Toward An Integrated Theory of Gender Stratification. *Sociological Perspectives* 36(3):185–216.
- Connell, RW. 1995. *Masculinities*. Berkeley: University of California Press.
- Cooke, LP., and Baxter, J., 2010. 'Families' in International Context: Comparing Institutional Effects Across Western Societies. *Journal of Marriage and the Family* 72(3):516–36.
- Diez-Roux, AV., 2000. Multilevel Analysis in Public Health Research. *Annual Review of Public Health* 21:171–92.
- Evenson, RJ., and Simon, RW., 2005. Clarifying the Relationship Between Parenthood and Depression. *Journal of Health and Social Behavior* 46(4):341–58.
- Ferraro, KJ., 2010. *An Existential Approach to Battering*. Thousand Oaks, California: Sage Publications.
- Giddens, A. (1979). *Central Problems in Central Theory*. London: Macmillan Press.
- Hondrich, KO., 1987. Micropathology and Macronormality. In: Alexander, J. et al., 1987. *The Micro-Macro Link*. Berkeley: University of California Press. pp. 255–66.
- Hopcroft, RL. and Bradley, DB., .2007. The Sex Difference in Depression Across 29 Countries. *Social Forces* 85(4):1483–507.
- Horwitz, AV., McLaughlin, J. and White, HR. 1998. How the Negative and Positive Aspects of Partner Relationships Affect the Mental Health of Young Married People. *Journal of Health and Social Behavior* 39(2):124–36.
- Kabeer, N. 1999. Resources, Agency, Achievements: Reflections on the Measurement of Women's Empowerment. *Development and Change* 30: 435-464.
- Kahn, RS., et al. 2000. State Income Inequality, Household Income, and Maternal Mental and Physical Health: Cross Sectional National Survey. *British Medical Journal* 321(7272):1311–15.
- Kawachi, I., et al., 1999. Women's Status and the Health of Women and Men: A View from the States. *Social Science & Medicine* 48(1):21–32.
- Levecque, K., et al. 2011. Economic Hardship and Depression Across the Life Course: The Impact of Welfare State Regimes. *Journal of Health and Social Behavior* 52(2):262–76.

- Lewis, J. 2006. Men, Women, Work, Care and Policies. *Journal of European Social Policy* 16(4):387–92.
- Lewis, J., Campbell, M., and Huerta. C., 2008. Patterns of Paid and Unpaid Work in Western Europe: Gender, Commodification, Preferences and the Implications for Policy. *Journal of European Social Policy* 18(1):21–37.
- Marks, NF. 1996. Flying Solo at Midlife: Gender, Marital Status, and Psychological Well-Being. *Journal of Marriage and the Family* 58(4):917–32.
- Mirowsky, J. 1985. Depression and Marital Power—An Equity Model. *American Journal of Sociology* 91(3):557–92.
- Mirowsky, J., and Ross, CE., 2003. *Social Causes of Psychological Distress*. Hawthorne: Aldine De Gruyter.
- OECD, 2005. *What are Equivalence Scales?* [pdf] Available at <http://www.oecd.org/dataoecd/61/52/35411111.pdf> [Accessed on June 17, 2009]
- Piccinelli M, and Wilkinson G. 2000. Gender differences in depression - Critical review. *British Journal of Psychiatry* 177: 486-492.
- Radloff, LS. 1977. The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *Applied Psychological Measurement* 1:385–401.
- Reynolds, JR., and Ross. C. E., 1998. Social Stratification and Health: Education's Benefit Beyond Economic Status and Social Origins. *Social Problems* 45(2):221–47.
- Rosenfield, S. 1992. The Costs of Sharing—Wives' Employment and Husbands' Mental Health. *Journal of Health and Social Behavior* 33(3):213–25.
- Ross, CE., and Huber. J., 1985. Hardship and Depression. *Journal of Health and Social Behavior* 26(4):312–27.
- Sabo, D., and Gordon, DF. 1996. *Rethinking Men's Health and Illness. The Relevance of Gender Studies*. Thousand Oaks, California: Sage Publications.
- Schneider, S., 2007. Measuring Educational Attainment in Cross-National Surveys: The Case of the European Social Survey. In: *ESA, Conflict, Citizenship and Civil Society*, Glasgow,

United Kingdom 3-6 September, 2007..

- Sen, AK. 1985. *Commodities and Capabilities*. Amsterdam: North Holland.
- Snijders, T., and Bosker. R. 1999. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modeling*. Thousand Oaks, California: Sage Publications.
- Stanistreet, D., Author, and Scott-Samuel, A., 2005. Is Patriarchy the Source of Men's Higher Mortality? *Journal of Epidemiology and Community Health* 59(10):873–76.
- Stets, JE., and Burke, PJ., 2005. Identity Verification, Control, and Aggression in Marriage. *Social Psychology Quarterly* 68(2):160–78.
- Torsheim, T., et al. 2006. Cross-National Variation of Gender Differences in Adolescent Subjective Health in Europe and North America. *Social Science & Medicine* 62(4):815–27.
- Umberson, D., and Gove, WR., 1989. Parenthood and Psychological Well-Being—Theory, Measurement, and Stage in the Family-Life Course. *Journal of Family Issues* 10(4):440–42.
- United Nations Development Programme, 2005. *Gender Empowerment Measure*. Available at <<http://hdrstats.undp.org/en/indicators/125.html>> [Accessed January 23, 2010]
- Author, Author, and Levecque, K., 2010. Gender Differences in Depression in 23 European Countries. Cross-National Variation in the Gender Gap in Depression. *Social Science & Medicine* 71:305–13.
- Author, et al., 2010. Gender Differences in Depression in 25 European Countries After Eliminating Measurement Bias in the CES-D 8. *Social Science Research* 39(3):396–404.
- Van Praag, L. et al.. 2009. Mental Health in a Gendered Context. Gendered Community Effect on Depression and Problem Drinking. *Health & Place* 15(4):990-8.
- Weber, M. 1946. *Essays in Sociology*. Oxford: Oxford University Press.
- West, C., and Zimmerman DH. 1987. Doing Gender. *Gender & Society* 1(2):125–51.
- World Bank. 2009. *World Development Indicators*. Washington, DC: World Bank Publishers.

Table 1

Multilevel Model Results of Macro-Level Gender Equality to Depression and Gender Differences in Depression.

	<u>Model 1</u>	<u>Model 2</u>	<u>Model 3a</u>	<u>Model 4a</u>	<u>Model 5a</u>	<u>Model 6a</u>
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Gender (0 = men)	0.81* (0.07)	0.65* (0.06)	0.65* (0.06)	0.65* (0.06)	0.65* (0.06)	0.65* (0.06)
GEM			-5.68* (1.27)			
Political participation				-2.61* (0.80)		
Economic participation					3.56* (0.71)	
Power over resources						-4.59* (0.60)
Country variance	1.45*	1.28*	0.64*	0.81*	1.01*	0.34*
Individual variance	15.06*	13.84*	13.84*	13.84*	13.84*	13.84*
Random slope gender	0.11*	0.09*	0.09*	0.09*	0.09*	0.09*
			<u>Model 3b</u>	<u>Model 4b</u>	<u>Model 5b</u>	<u>Model 6b</u>
			B (SE)	B (SE)	B (SE)	B (SE)
Gender (0 = men)			0.65* (0.06)	0.65* (0.06)	0.65*(0.06)	0.65* (0.06)
GEM			-5.25* (1.36)			
GEM * gender			-0.55 (0.43)			
Political participation				-2.40* (0.83)		
Political participation * gender				-0.28 (0.27)		
Economic participation					3.45* (0.78)	
Economic participation *gender					0.16 (0.44)	
Power over resources						-4.32* (0.62)
Power over resources * gender						-0.35 (0.24)
Country variance			0.64*	0.81*	1.01*	0.33*
Individual variance			13.84*	13.84*	13.84*	13.84*
Random slope gender			0.09*	0.09*	0.09*	0.09*

* p < 0.5

Table 2

Multilevel Model Results of Macro-Level Gender Equality to Depression and Gender Differences in Depression, for Eight Subgroups

	<u>Employed</u> B (SE)	<u>Non-employed</u> B (SE)	<u>In poverty</u> B (SE)	<u>Not in poverty</u> B (SE)	<u>Cohabiting</u> B (SE)	<u>Not cohabiting</u> B (SE)	<u>Children</u> B (SE)	<u>No children</u> B (SE)
Gender	0.63* (0.05)	0.45* (0.09)	0.76* (0.12)	0.66* (0.06)	0.78* (0.06)	0.39* (0.09)	0.67* (0.11)	0.63* (0.06)
GEM	-4.81* (1.35)	-6.06* (1.51)	-5.26* (1.13)	-5.14* (1.41)	-5.92* (1.40)	-3.97* (1.38)	-3.26* (1.33)	-5.77* (1.43)
GEM * gender	-1.04* (0.35)	0.65 (0.63)	0.28 (0.91)	-0.67 (0.42)	-0.24 (0.46)	-1.33* (0.61)	-1.24 (0.72)	-0.49 (0.49)
Gender	0.63* (0.05)	0.45* (0.09)	0.74* (0.12)	0.66* (0.06)	0.78* (0.06)	0.38* (0.09)	0.66* (0.11)	0.63* (0.06)
Political participation	-2.19* (0.80)	-2.85* (0.93)	-2.12* (0.75)	-2.41* (0.84)	-2.54* (0.87)	-2.17* (0.81)	-1.38 (0.75)	-2.65* (0.88)
Political participation * gender	-0.58* (0.24)	0.39 (0.36)	-0.24 (0.57)	-0.29 (0.27)	-0.20 (0.28)	-0.51 (0.42)	-0.67 (0.42)	-0.24 (0.31)
Gender	0.62* (0.06)	0.45* (0.09)	0.73* (0.12)	0.65* (0.06)	0.77* (0.06)	0.38* (0.08)	0.66* (0.11)	0.63* (0.06)
Economic participation	3.24* (0.74)	3.91* (0.95)	4.04*** (0.90)	3.28* (0.80)	3.44* (0.83)	3.32* (0.74)	3.31* (0.64)	3.47* (0.84)
Economic participation * gender	0.29 (0.30)	0.42 (0.63)	-0.13 (0.69)	0.23 (0.50)	-0.02 (0.41)	0.55 (0.55)	-0.64 (0.48)	0.35 (0.48)
Gender	0.63* (0.05)	0.45* (0.09)	0.78* (0.11)	0.66* (0.06)	0.77* (0.06)	0.38* (0.09)	0.67* (0.28)	0.63* (0.06)
Power over resources	-3.95* (0.60)	-4.93* (0.75)	-4.53* (0.60)	-4.12* (0.64)	-4.91* (0.61)	-3.03* (0.78)	-3.07* (0.74)	-4.63* (0.63)
Power over resources * gender	-0.62* (0.22)	0.25 (0.38)	0.59 (0.60)	-0.51* (0.24)	-0.05 (0.24)	-1.09* (0.38)	-0.58 (0.43)	-0.37 (0.29)

* $p < 0.5$

Appendix 1

Mean Depression Scores and Standard Deviations for Men and Women, Significance of the Gender Difference, and Gender Equality Values per Country.

	Depression						Gender equality measures (UNDP)			
	N	Men		Women		Sign.	General GEM	Political participation	Economic participation	Power over resources
		Mean	S.D.	Mean	S.D.					
Total	39,891	5.60	3.91	6.64	4.38	0.000	0.708	0.66	0.90	0.55
Norway	1,524	3.98	3.01	4.38	3.16	0.012	0.910	0.94	0.92	0.87
Sweden	1,680	4.45	3.39	5.40	4.18	0.000	0.906	1.00	0.92	0.80
Finland	1,620	4.81	3.13	5.04	3.40	0.158	0.887	0.97	0.91	0.78
Denmark	1,297	4.47	3.07	4.97	3.50	0.007	0.875	0.93	0.87	0.83
Netherlands	1,660	4.63	3.42	5.72	3.93	0.000	0.859	0.92	0.88	0.78
Belgium	1,559	4.74	3.81	6.04	4.39	0.000	0.850	0.91	0.93	0.70
Germany	2,489	5.63	3.46	6.27	3.80	0.000	0.831	0.84	0.96	0.68
Spain	1,540	4.82	3.85	6.02	4.36	0.000	0.794	0.84	0.93	0.60
Austria	2,045	5.17	3.68	5.54	3.95	0.029	0.788	0.84	0.89	0.62
UK	2,003	5.32	4.00	6.20	4.39	0.000	0.783	0.61	0.94	0.78
France	1,740	4.86	3.73	6.18	4.68	0.000	0.718	0.46	0.96	0.72
Ireland	1,383	4.75	3.61	4.93	3.66	0.355	0.699	0.49	0.93	0.69
Portugal	1,856	6.40	3.81	8.11	4.53	0.000	0.692	0.65	0.94	0.47
Switzerland	1,560	4.30	3.13	4.98	3.42	0.000	0.660	0.73	0.84	0.76
Estonia	1,311	6.23	3.64	6.96	4.01	0.001	0.637	0.62	0.90	0.36
Slovakia	1,488	7.06	3.77	7.44	3.96	0.059	0.630	0.60	0.91	0.36
Latvia	1,531	7.78	3.87	8.21	3.76	0.028	0.619	0.56	0.95	0.32
Poland	1,486	5.95	4.43	7.19	5.07	0.000	0.614	0.59	0.92	0.32
Slovenia	1,229	5.21	3.21	5.93	4.07	0.001	0.611	0.37	0.93	0.52
Bulgaria	1,190	7.17	4.70	8.24	4.74	0.000	0.606	0.67	0.93	0.21
Cyprus	876	4.37	3.02	5.78	3.76	0.000	0.580	0.47	0.74	0.52
Hungary	1,276	7.99	4.97	8.73	4.95	0.009	0.569	0.35	0.93	0.42
Romania	1,815	6.72	3.75	7.78	3.90	0.000	0.497	0.37	0.90	0.22
Rus. Fed.	2,051	6.97	4.27	8.48	4.52	0.000	0.489	0.26	0.94	0.25
Ukraine	1,682	7.46	4.51	9.12	4.85	0.000	0.462	0.28	0.94	0.15

