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Gender differences in depression in 23 European countries. Cross-national variation in the gender gap in depression.

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Abstract

One of the most consistent findings in the social epidemiology of mental health is the gender gap in depression. Depression is approximately twice as prevalent among women as it is among men. However, the absence of comparable data hampers cross-national comparisons of the prevalence of depression in general populations. Using information about the frequency and severity of depressive symptoms from the third wave of the European Social Survey (ESS-3), we are able to fill the gap the absence of comparable data leaves. In the ESS-3, depression is measured with an eight-item version of the Center for Epidemiological Studies-Depression Scale. In the current study, we examine depression among men and women aged 18 to 75 in 23 European countries. Our results indicate that women report higher levels of depression than men do in all countries, but there is significant cross-national variation in this gender gap. Gender differences in depression are largest in some of the Eastern and Southern European countries and smallest in Ireland, Slovakia and some Nordic countries. Hierarchical linear models show that socioeconomic as well as family-related factors moderate the relationship between gender and depression. Lower risk of depression is associated in both genders with marriage and cohabiting with a partner as well as with having a generally good socioeconomic position. In a majority of countries, socioeconomic factors have the strongest association with depression in both men and women. This research contributes new findings, expanding the small existing body of literature that presents highly comparable data on the prevalence of depression in women and men in Europe.

Introduction

Cross-national research on gender differences in depression

In the Western world, depression is approximately twice as prevalent in women as it is in men (Piccinelli & Wilkinson, 2000). This pattern appears in both clinical and general population samples and is virtually independent of location, method of assessment and diagnostic system (Kessler, McGonagle, Swartz, Blazer & Nelson, 1993). While the average gender difference points to more universal genetic, neurohormonal, or psychobiological gender-linked antecedents of depression (Kuehner, 2003), cross-national variation in the gender ratio of depression suggests that social conditions also have a strong association with depression (Weissman, Bland, Canino, Faravelli, Greenwald, Hwu et al., 1996). Hence, most current research accepts that gender differences in depression are the result of a variable interplay among biological, psychological and social factors (Hopcroft & Bradley, 2007; Kuehner, 2003).

The available research on cross-national variation in the gender ratio of depression should be considered cautiously since it is limited in several ways. The main limitation is the absence of comparable data that is representative of the general population. Usually, cross-national differences are estimated using meta-analyses of data from a diverse set of studies using different depression inventories, sampling designs and sampling populations. Moreover, the few multicountry epidemiological studies that do use a comparable design have several shortcomings. A recent study based on the World Values Study (Hopcroft & Bradley, 2007) had only one item available as a factor of depression/unhappiness. Other studies are limited to samples of students (Fischer & Manstead, 2000) or couples aged 50 and older (Börsch-Supan, Brugiavini, Jürges, Mackenbach, Siegrist & Weber, 2005). Some are based on patient samples only (Angst, Gamma, Gastpar, Lepine, Mendlewicz & Tylee, 2002; Ayuso-Mateos, Vázquez-Barquero, Dowrick, Lehtinen, Wilkinson, Lasa et al., 2001; Maier, Gansicke, Gater, Rezaki, Tiemens & Urzua, 1999) or contain only a small set of countries (Alonso, Angermeyer, Bernert, Bruffaerts, Brugha, Bryson et al., 2004). In these studies, it is not the number of countries involved that hampers the usefulness of these data so much as it is that they are convenience samples, which hinders the generalizability of the findings.

In addition, the aforementioned studies present mixed results concerning cross-national variation in gender differences in depression. In certain studies, countries can be grouped by the size of the gender gap in depression. For example, based on the ODIN data, one study reported that the largest gender differences in depression were found in Anglo-Saxon countries, and lower levels of depression were reported in Nordic countries (Ayuso-Mateos et al., 2001). Other data however did not confirm this clustering, but found that among

Eastern European countries the smallest and the largest gender gap in depression could be established in two separate countries; the same held for some of the Northern and Southern European countries (Hopcroft & Bradley, 2007; Immerman & Mackey, 2003). Other studies found a smaller variation in gender differences in depression across countries (Börsch-Supan et al., 2005; Maier et al., 1999).

Using information from the third wave of the European Social Survey (ESS-3) we are able to fill this gap in the literature. The ESS-3 is representative of the general population in almost all European countries and has gathered information on depression using a shortened version of the internationally validated and reliable inventory, the Centre for Epidemiologic Depression Scale (CES-D). The ESS-3 data thus allow us to analyze to what extent gender differences in depression vary across Europe. A high degree of cross-national variability would indicate that the consideration of social sources of stress is important for understanding the gender gap in depression.

Explaining the gender gap in depression

The stress and vulnerability model, which describes the relationship between stressors the individual is exposed to and the individual's reaction to those stressors, is often used to predict the causes of depression (Pearlin, 1989). In addition to biological and psychological risk factors (for an overview see Kuehner, 2003), the literature addressing the gender gap in depression identifies a large variety of gender-specific social risk factors. Theories on depression often address the gendered pattern of social roles and social positions within different domains of private and social life. Female roles seem more prone to role limitations associated with lack of choice, to role overload, to competing social roles and to a tendency for females to be under-valued (Piccinelli & Wilkinson, 2000; Stoppard, 2000); female social positions are therefore more characterized by powerlessness and lower status levels (Collins, Chafetz, Blumberg, Coltrane & Turner, 1993; Connell, 1985).

When studying these roles and positions, depression researchers usually focus on the gender-specific demands that marriage, childcare and employment often make. These demands and role expectations show increasing differentiation according to gender because of structural and cultural changes that have taken place, particularly in the last two decades. For example, mothers who stay at home and are unemployed are increasingly less valued. Additionally, women continue to join the workforce in larger numbers, becoming economically independent and increasingly share childcare responsibilities with men. However, filling the role of homemaker and childcare provider continues to decrease the likelihood of paid employment for women; it can also result in additional responsibilities for those women who fill those roles and are employed (Bebbington,

1996; Piccinelli & Wilkinson, 2000). Women entering the job market face a higher risk of economic discrimination and job inequality than men do, and when employed, they may face an increased risk of depression due to role overload and role conflict because of the combination of responsibilities associated with employment and the household and care giving (Piccinelli & Wilkinson, 2000). For men, structural changes in family arrangements and the labor market are often accompanied by a significant challenge to the traditional definition of masculinity, which includes an inhibition against help-seeking and specific ideas about fatherhood, about male emotional expression, and about the role of men as sole breadwinners (Courtenay, 2000; Garfield, Clark-Kauffman & Davis 2006). The effect of these social changes on male depression and male risk and vulnerability factors has not been sufficiently studied and remains unclear (Addis, 2008; Garfield et al., 2006), but there is evidence that divorced fathers – even as non-custodial parents – experience many parenting-related strains; this partly explains why they are more depressed than married men (Umberson & Williams, 1993). One related finding is that, after marital dissolution, fathers are as equally prone to depression as mothers when there are preschool-aged children in the home (Williams & Dunne-Bryant, 2006). Recent research has shown however that despite the emergence of new male risk groups for depression and the decline of the stereotypical, traditional family—a wage-earning father and a stay-at-home mother, in most European countries housekeeping and care giving is still mainly a woman’s responsibility (Lewis, Campbell & Huerta, 2008).

Related research on the social determinants of the female preponderance of depression focuses on stressful life events, like marital disruption and employment problems. Some models show that the gender gap in depression is due to a higher exposure of women to such events; other models point to gender differences in vulnerability as well (Kendler, Thornton & Prescott, 2001). The empirical evidence for gendered patterns in depressive reactions to both marital disruption (see e.g., Kalmijn & Monden, 2006; Simon & Marcussen, 1999 vs. Lucas, 2005; Marks, 1996) and employment problems (see e.g., Leeflang, Kleinhesselink & Spruit, 1992 vs. Artazcoz, Benach, Borrell & Cortes, 2004; Vanroelen, Levecque & Louckx, in press) is mixed. One recurrent finding is that females are more dependent on emotional support and on personal relationships in which emotional intimacy, trust and solidarity are exchanged than men are (Pearlin, Menaghan, Lieberman & Mullan, 1981; Rosenfield, Vertefuille & McAlpine, 2000). Women seem to bear “the cost of caring” (Bracke, Christiaens & Wauterickx, 2008; Kendler, Gardner, Neale & Prescott, 2001), meaning that they are more exposed to and more sensitive to social network events, leading to increased levels of depression when interpersonal stress or interpersonal loss is experienced. For men, there is a large body of evidence that suggest they are more prone to depression due to work-related stressful events (Kendler et al., 2001). However, empirical studies often report

conflicting findings, suggesting that the association of the risk ratio of depression with negative life events and chronic strains needs further consideration (Kuehner, 2003).

Explaining cross-national variation in the gender gap in depression

Social models that explain gender differences in depression have emphasized the activities and circumstances of the everyday lives of women and men as sources of stress that may have an adverse effect on mental health. These models relate both socioeconomic- and family-related factors to stress. General gender stratification theories, for example, focus on the link between the differences in privilege and power in society and gender-based inequality (Collins et al., 1993). Blumberg (1984) argues that women's economic power is the strongest predictor of their overall status. A disadvantaged socioeconomic position, therefore, may be the primary explanation for higher levels of depression in women (Chonody & Siebert, 2008). However, the question that remains is to what extent does this hypothesis hold across different European countries. Women's economic power is directly related to the extent to which a welfare state enables women to survive as independent workers and decreases women's economic dependence on the family (Bambra, 2007). While high levels of de-familialization are typical of Nordic countries, in Southern European countries women are strongly dependent on family (Zunzunegui, Minicuci, Blurnstein, Noale, Deeg, Jylha et al., 2007). The Anglo-Saxon countries offer women the right to gender equality at work, but offer limited public assistance for the cost of childcare, creating problems regarding income and time, and resulting in gender inequality, questionable childcare arrangements and poor outcomes for children (Gornick & Meyers, 2003). Similarly, Eastern European countries publically advocate a dual-earner model. However, in the private sphere, gender roles have remained rather traditional (Pascall & Lewis, 2004). It is reasonable to assume that, in addition to structural restrictions, stressors that occur in life domains that are highly valued also trigger depression. Research indicates that gender ideology is still relatively traditional in Eastern and Southern Europe and is more egalitarian in Nordic and Anglo-Saxon countries (Stickney & Konrad, 2007). Research has not yet tested empirically whether women suffer more from family-related stress in countries with a more traditional gender ideology.

The aim of the current study is threefold. First, we will determine cross-national variation in the gender gap in depression in 23 European countries. Second, we will examine to what extent socioeconomic factors and family-related factors explain the gender difference. Last, we will study how social risk factors associated with depression vary across countries and between genders.

Methodology

Sample: The European Social Survey, 2006/2007

Our analyses are based 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 selected respondents using strict probability samples of the resident national population aged 15 or older living in private households. Proxies were not allowed. Data was gathered via face-to-face interviews. Our analyses were restricted to respondents aged 18 to 75 ($N = 36,752$ respondents; 17,165 men and 19,587 women). We did not consider Latvia and Romania since the design weights for these countries were missing. The other countries included in the ESS-3 are a selection from Northern Europe (Denmark, Estonia, Finland, Ireland, Norway, Sweden and the United Kingdom), Western Europe (Austria, Belgium, France, Germany, the Netherlands and Switzerland), Southern Europe (Cyprus, Portugal, Slovenia and Spain) and Eastern Europe (Bulgaria, Hungary, Poland, the Russian Federation, Slovakia and Ukraine) (United Nation Statistics Division, 2009). Countries were grouped together in these broad regions to facilitate discussion of results; the grouping was not intended to suggest a substantial differentiation of any kind by broad region. Response rates ranged from 45.97% in France to 73.19% in Slovakia. All data are weighted using the design weight provided by the ESS-3, which corrects for slightly different probabilities of selection.

Dependent variable: Depression

Depression is measured using an eight-item version of the Center for Epidemiologic Studies-Depression Scale (CES-D) (Radloff, 1977). The CES-D was constructed to identify populations at risk for developing depressive disorders; it should not however, be used as a clinical diagnostic tool by itself (Radloff, 1977). Respondents were asked to indicate how often in the week before 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 range from *none or almost none of the time* (0) to *all or almost all of the time* (3). Scale scores for the CES-D 8 are assessed using nonweighted, summated rating and range from 0 to 24, with higher scores indicating a greater frequency and severity of depressive complaints. If four or fewer items are missing, mean substitution is applied. Reliability and validity of the inventory are confirmed across gender and countries (Van de Velde, Bracke, Levecque & Meuleman, in press). Cronbach's alpha ranges between 0.81 (in male data) and 0.85 (in female data), with the lowest score found in Denmark (0.73), the highest in Hungary (0.88). A one-dimensional depression model, with all items loading on the factor depression

and with correlated errors between the reverse-worded items *were happy* and *did not enjoy life*, showed measurement invariance up to the level of partial scalar invariance (CFI:0.98; TLI: 0.94; RMSEA: 0.01).

Independent variables

We include *gender* (0 = male, 1 = female) and age (in years) in our model. Squared value of age is also added to account for the non-linear association between depression and age (Mirowsky & Ross, 1992). Age squared is divided by 100 so that the order of magnitude of the variance corresponds more to the variance of the dependent variables (Hox, 2002).

Socioeconomic-related factors: Socioeconomic position is measured by labor market position, educational level and household income. Labor market position is coded as a set of dummy variables. Respondents are either in paid employment (reference category), students, unemployed, permanently sick or disabled, retired, housekeepers (doing housework or looking after children or others) or in another unidentified labor market position. (e.g., military service). Educational level is measured by total number of years of full-time education. Income position is assessed by the relative equivalent household income, using the modified OECD equivalence scale (OECD, 2005). Income position is coded into five categories, with one category representing respondents with missing data. The other categories represent people living in relative poverty (< 50% of the median equivalent income); a low-income group (50 to 80% of the median equivalent income); people with an income around the national average (80 to 120% of the median equivalent income); and those with a relatively high income (> 120% of the median equivalent income: reference category).

Family-related factors: The effect of the respondent's family situation on gender differences in depression is assessed using three separate factors. Marital status indicates whether someone is married or in a civil partnership (reference category), divorced or separated, widowed or single. We also include a factor of co-habitation with a partner regardless of marital status (0 = no, 1 = yes). Finally, we assess whether there are children less than 12 years of age living in the respondent's household (0 = no, = yes).

Statistical procedure

We begin by examining differences in means and standard deviations using the ANOVA method in SPSS 17.0 (see Table 1). The association of gender differences in depression with socioeconomic-related and family-

related factors is studied via regression analyses using a hierarchical linear model (HLM) (see Table 2). The HLM results show regression coefficients for the fixed effects in the model and variance associated with the random slopes model. For the fixed effects model, additional interaction terms of the independent variables with gender are calculated, but we report only significant results in the text. The random slopes model indicates to what extent the association with depression differs across countries. Last, we indicate the extent to which the variance in depression is predicted specifically by the group of socioeconomic-related factors versus the group of family-related factors (see Figure 1). This can be calculated by comparing the explained variance of the full model, including all the “predictive” and “control” factors, with the explained variance of a model that includes only the socioeconomic-related factors or the family-related factors. For this part of the analysis, we did not include information on whether the person was permanently sick or disabled. Like the unemployed or the retired, the permanently sick or disabled are outside the labor market when they are eligible for income support (Esping-Andersen, 1990). However, their health condition determines their status, so the causal direction of the association between their mental health status and their status of being permanently sick or disabled is unclear, and probably differs from that of unemployed and retired people. To circumvent all problems of interpretation those classified as permanently sick or disabled are excluded from analyses in some studies (Hillsdon, Thorogood, White & Foster, 2002; Olsen & Dahl, 2007; Sloggett & Joshi, 1998). We chose to include them in our analyses in order to consider between-country differences in self reported membership of those categories (Erlinghagen, Knuth & Knuth, 2008). However, we excluded them when evaluating the relative importance of socioeconomic- versus family-related determinants across countries because their inclusion in the category of socioeconomic-related factors would lead to an overestimation of the relative importance of socioeconomic conditions. Finally, our statistical analyses do not offer a causal explanation, so when the term “explain” is used in the upcoming Results and Discussion sections, it should be understood in a statistical rather than a causal relationship sense.

Results

Cross-national comparisons of means

Table 1 gives an overview of mean depression scores and their dispersion by country and by gender. These descriptives indicate that overall depression levels are clustered together by region, with the highest scores found in Eastern European countries, the lowest in Northern and Western European countries. Countries with high mean scores generally show lower levels of dispersion, while scores are generally more dispersed in countries

with a lower mean depression level. Norway reports the lowest depression scores, followed by Switzerland and Ireland; the highest mean scores were found in Hungary, Ukraine and the Russian Federation.

Insert Table 1 here

Mean gender differences in depression however do not show a similar trend: the largest gender differences are noted not only in some Eastern European countries, but also in Southern European countries. Additionally, in all countries, with the exception of Ireland, Finland and Slovakia, women report significantly higher levels of depression than men do. The gender difference is largest in Portugal (Δ = difference in mean depression scores of men and women; $\Delta = 1.50$, $p < 0.001$) and smallest in Ireland ($\Delta = 0.09$, ns). Ukrainian females and Hungarian males report the highest level of depression of their sex, with a mean score of, respectively, 8.51 and 7.73. Norwegian females and Norwegian males report the lowest depression levels for each sex, with a mean score of 4.38 and 3.97, respectively. Comparisons of the standard deviations suggest that depression scores are more widely spread among women than men in all countries except Bulgaria and Hungary. In sum, there is clear evidence of higher depression levels among women. However, we also found variability between countries. We examine the sources of this variability in the next section.

The relevance of socioeconomic- versus family-related factors to explaining gender differences in depression

Table 2 shows the results of the hierarchical linear analysis covering the 23 European countries included in the ESS-3, as well as the results of the analyses for men and women, separately. The results confirm the epidemiological finding that women report higher levels of depression than men do, and that, overall, this gender gap is highly significant ($p < 0.001$). Controlling for age, this difference is 0.81 units higher among women than among men. Socioeconomic- as well as family-related factors can explain about 20% of this gender disparity. Additionally, analysis of the random slopes indicates a significant variation between countries ($p < 0.001$). Therefore, although gender overall is universally an important predictive factor for depression, its importance varies greatly from one country to another.

Insert Table 2 here

Respondents with a generally good socioeconomic position report lower levels of depression, regardless of their gender. Lower depression levels among those with higher incomes and more years of education and among those who are students or have paid employment demonstrate this association. The association of higher education with better mental health is significantly more pronounced in women than men ($p < 0.001$). While the effect of unemployment or permanent sickness or disability on depression seems to be similar among both

genders, retirement ($p < 0.05$) and housekeeping or looking after young children or others ($p < 0.001$) show significant gender differences. Retired men report higher levels of depression than men in paid employment do. However, this is not the case among retired women, who do not report significantly more depression than employed women do. Overall, housekeeping does not have a negative effect on the depression level of women, but it does on that of men. Finally, people living in poverty report the highest levels of depression compared to other income categories; this effect seems to be most detrimental to women. The gender difference in the effect of poverty on depression was not significant, however.

The results of the random slopes model indicate that significant cross-national variation in the effect of most socioeconomic-related factors on depression can be established. The effect of education on depression varies significantly across countries for both genders. However, income varies significantly across countries only among men; for women cross-national variation is small and non-significant. Unemployment also varies significantly cross-nationally in men only, while the effect of sickness or disability and retirement on depression only varies significantly across countries for women. Finally, across Europe, housekeeping is associated with depression in a similar way for both genders.

Consideration of the association between family-related factors and depression reveals that, overall, married respondents or those in a civil relationship report lower levels of depression than divorced, separated, widowed and single respondents. The association is strongest for respondents who have lost a partner through death and it is much stronger for men than women ($p < 0.01$). The presence of young children in the household does not have a significant association with depression in women or men. Finally, living with a partner seems to be an important buffer against depression for both genders. The random slopes model indicates that the association between marriage dissolution and depression differs significantly cross-nationally in both men and women. However, the mental health of widowed or single men and women seems to be similar across European countries. In addition, the strong association between depression and the absence of a partner is universal for both genders, with no significant cross-national variation.

In sum, differences in depression levels in men and women can be accounted for in part by differences in their social and economic roles. However, the significant variance of some of the factors suggests between-country differences in the relative importance of socioeconomic position and of family situation for predicting the level of depressive complaints.

Cross-national variation in the relationship of socioeconomic- versus family-related factors to depression

Figure 1 shows the country- and gender-specific contributions of the set of socioeconomic- and of family-related factors to the explanation of variance in depression. We hypothesized that the predictive value of both sets of factors would be moderated by national structural and cultural conditions, like level of de-familialization and type of gender ideology. Our results confirm cross-national variation in the contribution of both sets of factors. For men, the independent contribution of socioeconomic-related factors ranges from 1.5% (Ukraine) to 14.3% (Bulgaria); for women it ranges from 2.1% (Austria) to 9.7% (Slovenia). The contribution of family-related characteristics ranges from 1.1% (Slovakia) to 7.1% (Ukraine) among men and from 0.4% (Finland) to 5.4% (Spain) in women.

In regions with lower levels of de-familialization and/or a more traditional gender ideology, like Southern and Eastern Europe, we expected to find that female depressive levels are related more to problems in family life than to socioeconomic positions and that male depressive levels are related more to a disadvantaged socioeconomic position than to family life problems. However, in most Southern and Eastern European countries, we find that both men and women are vulnerable to socioeconomic problems. The assumption that family situation rather than socioeconomic position explains the majority of variance in depression is found to be the case for only Spanish women (5.4% vs. 2.8%); in other Southern European countries the opposite is found to be true. The latter is most pronounced in Slovenia, where, for women, the independent contribution of socioeconomic position to depression is tenfold the contribution of family situation (9.7% vs. 0.9%).

Similarly, in most of the Eastern European countries we find that depressive levels in both men and women are more strongly associated with socioeconomic position than family life. Russian women are the exception (family-related factors explain 4.3% of the variance; socioeconomic-related factors explain 2.3%). The results for Ukrainian men also deviate from the regional trend. In this country, the variation in men's depression scores is more sensitive to variation in family-related factors (7.1%), than socioeconomic-related factors (1.5%). The association between socioeconomic position and depression is most pronounced in Bulgaria and Hungary, explaining almost 15% of the variance in depression among Bulgarian men and more than 5% among Bulgarian women, while for both genders family situation explains less than 3%. Similarly, in Hungary within-gender differences in depression are more strongly related to socioeconomic position than family life in both men (8.7% versus 4.8%) and women (8.3% versus 1.7%).

A more diverse pattern is seen in Western Europe. With the exception of the French, women in this region are also more vulnerable to a variation in socioeconomic-related factors than family-related factors. The

contribution of the considered family-related characteristics is less than 1% in both Switzerland and Austria. However, for men, family-related factors explain more of the variance in depression than socioeconomic position in Austria (4.6% vs. 2.3%), Belgium (5.6% vs. 3.0%) and France (4.6% vs. 2.3%). Most notable is the relatively large contribution of socioeconomic position for Dutch men and women (5.3% in both genders) compared to other countries in the region.

As we expected, both men and women in Northern European countries are more affected by socioeconomic discrepancies than family problems. This is most pronounced in Swedish men, where socioeconomic position explains 4.4% of the variance in depression, while family situation explains less than half of that figure (2.1%). In addition, depression among Finnish women is weakly associated with family-related factors, which explain less than 0.5% of the variance in depression. However, for Danish men and women, the pattern is reversed. For both genders, family-related factors explain almost twice as much of the variance in depression as socioeconomic-related factors do.

Thus, in most countries the socioeconomic position of men and women has a stronger association with depression than factors related to the family. We found depressive problems related to family life rather than socioeconomic position to be more detrimental among men in 7 of the 23 countries and among women in 5 of the 23 countries. A comparison of the combined predictive power of socioeconomic- and family-related factors across genders shows that the model explains more of the variance in depression in men than women. In 16 of the 23 countries, socioeconomic factors contribute more to the explained variance in depression among men than among women; in 13 of the 23 countries, family factors are also more predictive of depression in men than in women. Finally, when we place these findings in the context of relative depression levels, it is difficult to find a straightforward explanation for the variation we observe between countries and genders. We did not find that the association of socioeconomic- or of family-related factors with depression to be stronger in countries with high levels of depression or a large gender gap.

Discussion

Our results confirm the findings in international research that there is a gender gap in depression across Europe. Socioeconomic-related factors as well as family-related characteristics moderate the relationship between gender and depression. We found that a generally good socioeconomic position is associated with lower levels of depression in both men and women. However, for women education is significantly more predictive of depression than for men. Perhaps women get smaller labor market payoffs than men do, resulting in a

socioeconomic disadvantage that makes them more dependent on education for achieving wellbeing (Ross & Mirowsky, 2006). Similarly, we found that housekeeping and looking after young children or others, a task that is still mainly a woman's responsibility in most European countries (Lewis et al., 2008), does not, overall, have a negative effect on the depression level of women; it does however on that of men. We also found that marriage or cohabiting are important buffers against depression in both men and women. Both men and women name a spouse or partner as the person they are most likely to turn to for support in time of need (Bracke et al., 2008; Dakof & Taylor, 1990; Kalmijn & van Groenou, 2005) and they are relied on to provide most types of support among couples (Beach, Martin, Blum & Roman, 1993). However, previous research has indicated that being married is more stressful for women than men (Kalmijn & Monden, 2006; Simon, 2002). Moreover, men seem to suffer more from the loss of a partner, especially since their wife is often also their closest confidant, while women often have confidants that are outside the family (Symoens, Van de Velde, Colman & Bracke, 2008). This is partly reflected in our results, with widowhood as well as singlehood being a more significant risk factor for depression in men than women.

We observed variability across countries, in addition to variability within countries. The results show that in most countries the socioeconomic position of men and women has a stronger association with depression than factors related to the family. Hence, our results seem to confirm the general gender stratification hypothesis that depressive levels in the majority of European countries most strongly relate to socioeconomic position. However, cross-national variation in the size of the effect of socioeconomic position can be noted.

The largest gender differences in depression were found in a number of Southern European countries and in certain Eastern European countries. Until recently, many studies would have characterized Southern European countries as traditional, male-breadwinner systems. In contrast, the Eastern European countries, especially the former Soviet Union countries, have a history of socialist policy that encourages dual-breadwinner households (Ferrera, 1996; Pascall & Manning, 2000). However, both Southern and Eastern European countries are currently in transition. During the past decade, the Southern countries have been confronted with a rapid expansion of women's employment, which has forced them to be innovative in how they manage household responsibilities. Changes in men's behavior, especially in relation to the unpaid work of care giving, have nevertheless been relatively small (Lewis, 2006). For example, in Portugal, where we found the largest gender gap in depression, there is a relatively high number of mothers who are employed full time and of dual full-time income earners, along with relatively low levels of formal childcare provision (Plantenga & Remery, 2005). This may result in greater stress for women who are increasingly engaged in paid work but who continue to do the

bulk of unpaid care work. Lewis (2006) states that higher standards of mothering in this region also increase the tension between a personal career and aspirations for the family. In former Soviet Union countries, the case may be similar, as women in these countries also struggle to combine paid work and unpaid care work. The former Soviet era supported women as workers and socialized many costs of motherhood and care work (Pascall & Manning, 2000). This resulted in a high rate of female participation in the labor force at a much earlier date than in the West (Molyneux, 1990), although that participation remained gender segregated. The recent transition away from former Soviet policy has removed much of the support for women's unpaid care work and resulted in women becoming more family orientated out of necessity. To understand fully the gender differences in depression, future research should therefore focus on the conflict between the roles of parenthood and employment. However, notable gender differences in depression were also found in countries with a tradition of an extensive, formal childcare system and a high rate of female employment, like Belgium, France and Sweden. Thus, future research should consider these specific conditions in each country.

Some limitations of our study are worth noting when interpreting the results. First, as with all other cross-sectional surveys, it is difficult to distinguish the cause from the effect. A particular socioeconomic position or family situation may increase the risk of depression in a person; depression itself however may move a person into a less favorable socioeconomic position or family situation. In addition, some research findings indicate that gender differences in depression disappear when considering the socioeconomic and health differences between men and women across the entire life course. (Alvarado, Zunzunegui, Beland & Sicotte, 2009). However, the use of cross-sectional data does not allow us to confirm this finding.

A second limitation is that, though the ESS-3 presents an outstanding opportunity for cross-national comparisons of gender differences in depression, some of the issues that affect the comparability of multi-country studies, like selective non-response, differential modes of data collection, translation and conduct, may not be eliminated completely. If these issues are related to depression or the independent variables, some bias in the estimates cannot be excluded. For example, the non-response analysis of the income variable showed more missing information for the lower educated and those who are not in paid employment, as well as for unmarried respondents and individuals with higher depression scores. In addition, the income variable captured household income and therefore did not give an indication of the differential control over family income between husbands and wives. Our study is further limited because it utilizes only self-reported measures, and these may vary by country, culture and position within society. However, a multi-group confirmatory factor analysis based on the

CES-D 8 scale in the ESS-3 has shown that depression scores can be compared validly between the 23 countries in our analysis and between men and women (Van de Velde et al., 2010).

Third, our study uses a self-report depression inventory for which valid cut-off points have not yet been established and which does not allow us to assess clinical depression. We therefore could not make a distinction between respondents who are depressed and those who are not depressed. However, by using a dimensional rather than a categorical diagnostic system, we were able to identify populations at risk of developing depressive disorders and therefore did not restrict our study to those respondents who reported severe depressive symptoms. This reduces the potential of misclassifying individuals (Angst & Merikangas, 1997). Moreover, previous research has indicated that the use of dimensional models is more reliable and is more sensitive to the nature and the degree of symptoms, making it more suitable for regression analyses (Mirowsky & Ross, 1989; Shankman & Klein, 2002).

Finally, the current research focuses on gender differences in depression, but does not discuss how certain factors may affect depressive levels in men and women similarly in certain countries. For example, in Slovakia, a country recently faced with socioeconomic transitions, the gender difference in depression was insignificant, while the mean depression scores for both men and women were among the highest in Europe. In addition, we did not consider differences between countries in terms of either demographic or socioeconomic population composition, or in terms of gendered welfare state regimes (Bambra, Pope, Swami, Stanistreet, Roskam, Kunst et al. 2008) or gender stratification systems (Hopcroft & Bradley, 2007) as possible causes for cross-national variation in the gender ratio of depression. In subsequent analyses of the present data, we will explore these and other possible macrosociological factors.

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Figure caption

Figure 1. Independent contribution of family- and socioeconomic-related factors to the variance in depression, controlled for age and sickness or disability, by country and gender. ESS-3, 2006–2007.

Tables and Figures

Table 1

Mean depression scores and standard deviations (S.D.) of total dataset and of men and women, and difference in mean depression scores between men and women (Δ). ESS-3, 2006–2007. ('%' indicates % of variance explained by the factor).

	N	Total		Men		Women		Δ ; sig.
		Mean	S.D.	Mean	S.D.	Mean	S.D.	
Total	36435	5.90	4.11	5.40	3.84	6.34	4.29	0.94; 0.000
<i>Western Europe</i>								
Austria	2038	5.22	3.71	4.94	3.48	5.44	3.87	0.50; 0.002
Belgium	1551	5.42	4.18	4.74	3.81	6.04	4.40	1.30; 0.000
France	1739	5.32	4.13	4.71	3.55	5.90	4.53	1.19; 0.000
Germany	2482	5.84	3.58	5.59	3.48	6.10	3.67	0.51; 0.000
Netherlands	1659	4.99	3.58	4.44	3.26	5.50	3.79	1.06; 0.000
Switzerland	1558	4.54	3.22	4.21	3.05	4.82	3.33	0.61; 0.000
<i>Northern Europe</i>								
Denmark	1296	4.73	3.30	4.50	3.07	4.95	3.50	0.45; 0.014
Estonia	1310	6.63	3.87	6.23	3.64	6.95	4.01	0.72; 0.001
Finland	1617	4.91	3.26	4.79	3.12	5.04	3.40	0.25; 0.138
Ireland	1359	4.71	3.54	4.66	3.54	4.75	3.55	0.09; 0.622
Norway	1523	4.17	3.08	3.97	2.99	4.38	3.16	0.41; 0.009
Sweden	1678	4.92	3.83	4.46	3.40	5.38	4.17	0.92; 0.000
United Kingdom	2001	5.52	4.06	5.07	3.81	5.92	4.24	0.85; 0.000
<i>Southern Europe</i>								
Cyprus	869	5.05	3.45	4.34	2.98	5.67	3.71	1.33; 0.000
Portugal	1854	7.22	4.18	6.33	3.71	7.83	4.37	1.50; 0.000
Slovenia	1217	5.61	3.71	5.22	3.22	5.93	4.06	0.71; 0.001
Spain	1535	5.41	4.19	4.84	3.92	5.96	4.36	1.12; 0.000
<i>Eastern Europe</i>								
Bulgaria	1190	7.60	4.65	7.09	4.66	7.93	4.62	0.84; 0.002
Hungary	1274	8.15	4.78	7.73	4.81	8.47	4.73	0.74; 0.005
Poland	1486	6.55	4.74	5.90	4.36	7.18	5.00	1.28; 0.000
Russian Fed.	2050	7.62	4.32	6.82	4.22	8.18	4.29	1.36; 0.000
Slovakia	1467	7.22	3.88	7.03	3.77	7.40	3.97	0.37; 0.065
Ukraine	1682	8.06	4.69	7.49	4.60	8.51	4.72	1.02; 0.000

Table 2

Hierarchical linear model results for gender differences in depression, controlled for socioeconomic- and family-related factors. Fixed effects and random slopes of all data, and of men and women, separately. ESS-3, 2006–2007.

	TOTAL				MEN				WOMEN			
	Fixed effects		Random slopes		Fixed effects		Random slopes		Fixed effects		Random slopes	
	B (s.e.)	sig.	Variance	sig.	B (s.e.)	sig.	Variance	sig.	B (s.e.)	sig.	Variance	sig.
Model I: intercept	5.12 (0.28)	***	1.21	***								
Gender (0 = men)	0.81 (0.08)	***	0.10	***								
Age	-0.02 (0.01)	n.s.	0.00	***								
Age ²	0.05 (0.01)	**	0.00	***								
Model II: intercept	4.50 (0.40)	***	2.58	**	3.30 (0.52)	***	4.16	***	6.03 (0.57)	***	5.21	*
Gender (0 = men)	0.64 (0.07)	***	0.08	***								
Age	0.07 (0.02)	***	0.00	**	0.11 (0.02)	***	0.01	***	0.04 (0.02)	n.s.	0.01	*
Age square	-0.06 (0.02)	***	0.00	n.s.	-0.10 (0.02)	***	0.01	***	-0.06 (0.02)	*	0.01	*
<i>Socioeconomic- related</i>												
Household income												
< 50% of median income	1.02 (0.09)	***	0.09	n.s.	0.85 (0.13)	***	0.25	*	1.16 (0.11)	***	0.12	n.s.
50 to 80% of median income	0.73 (0.10)	***	0.16	***	0.72 (0.11)	***	0.17	**	0.75 (0.12)	***	0.16	n.s.
80 to 120% of median income	0.28 (0.07)	***	0.10	*	0.26 (0.09)	**	0.11	*	0.31 (0.09)	**	0.12	n.s.
(> 120% of median income)	-	-	-	-	-	-	-	-	-	-	-	-
Data income missing	0.28 (0.06)	***	0.05	n.s.	0.21 (0.07)	**	0.05	n.s.	0.31 (0.09)	**	0.09	n.s.
Number of years of full-time education	-0.09 (0.02)	***	0.00	***	-0.06 (0.02)	**	0.01	***	-0.11 (0.02)	***	0.01	***
Employment												
(paid employment)	-	-	-	-	-	-	-	-	-	-	-	-
Student	-0.11 (0.14)	n.s.	0.32	**	-0.09 (0.18)	n.s.	0.47	n.s.	-0.07 (0.19)	n.s.	0.49	*
Unemployed	1.21 (0.13)	***	0.25	*	1.31 (0.16)	***	0.36	*	1.13 (0.14)	***	0.23	n.s.
Permanently sick or disabled	3.73 (0.14)	***	0.30	n.s.	3.68 (0.22)	***	0.70	n.s.	3.86 (0.26)	***	1.15	*
Retired	0.26 (0.11)	*	0.19	n.s.	0.31 (0.14)	*	0.27	n.s.	0.27 (0.16)	n.s.	0.38	*
Housekeeper	0.18 (0.08)	*	0.07	n.s.	0.78 (0.25)	**	0.87	n.s.	0.00 (0.07)	n.s.	0.05	n.s.
Other	1.18 (0.38)	**	2.70	***	1.17 (0.44)	*	3.20	***	1.00 (0.33)	**	1.29	n.s.
<i>Family-related</i>												
Marital status												
(Married/civil partnership)	-	-	-	-	-	-	-	-	-	-	-	-
Divorced/separated	0.75 (0.16)	***	0.44	***	0.85 (0.16)	***	0.35	*	0.71 (0.21)	**	0.68	*
Widow	1.21 (0.18)	***	0.55	***	1.90 (0.31)	***	1.31	n.s.	0.96 (0.20)	***	0.62	n.s.
Single	0.21 (0.14)	n.s.	0.34	*	0.47 (0.14)	**	0.29	n.s.	-0.03 (0.17)	n.s.	0.44	n.s.
Living with partner (0 = no)	-0.80 (0.10)	***	0.14	n.s.	-0.83 (0.11)	***	0.13	n.s.	-0.73 (0.14)	***	0.24	n.s.
Young children in household (0 = none)	-0.02 (0.07)	n.s.	0.07	n.s.	0.01 (0.08)	n.s.	0.08	n.s.	0.01 (0.09)	n.s.	0.12	n.s.
Proportion variance explained	12.4%				12.8%				12.2%			

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
Reference category in parentheses.

Fig. 1.

